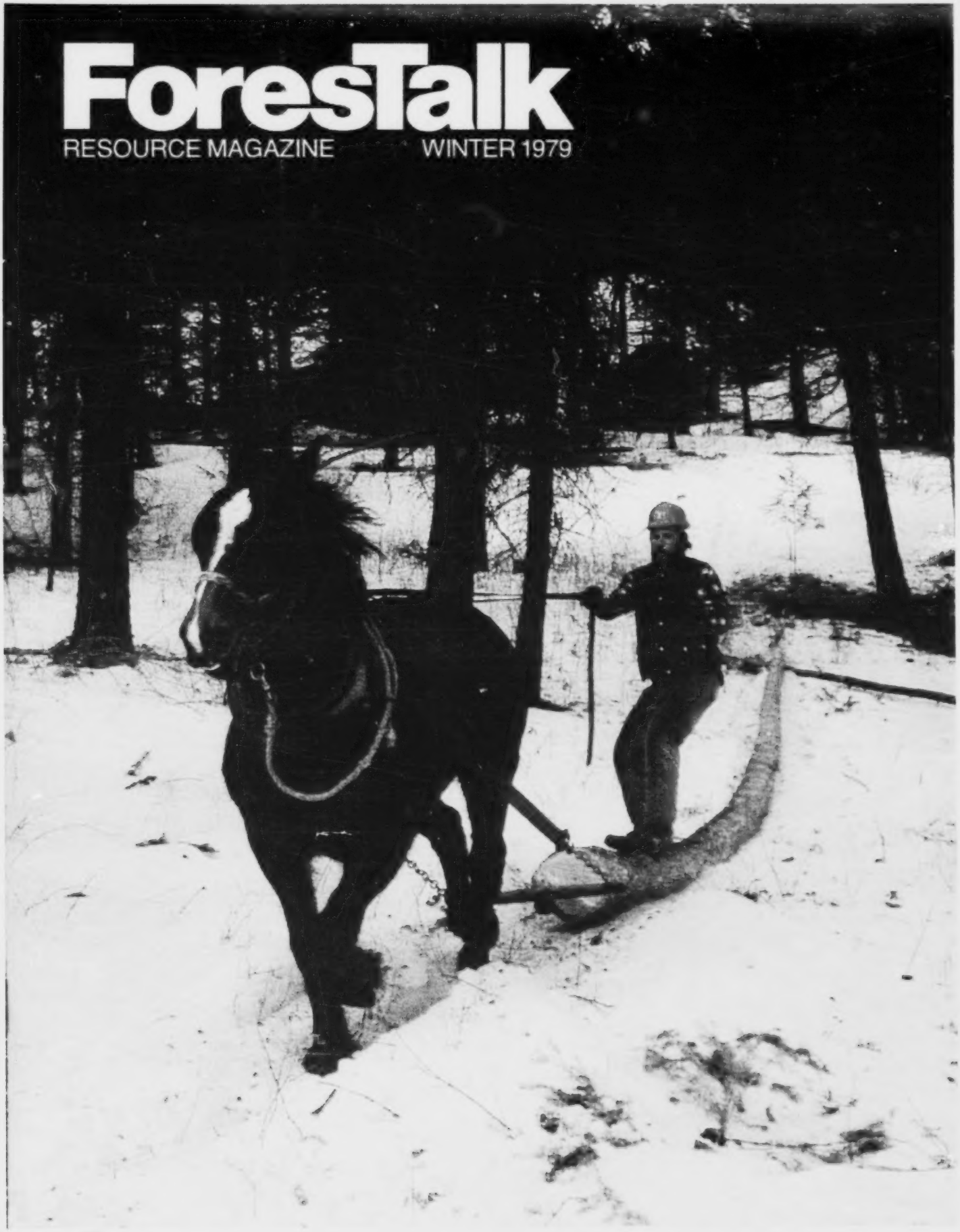
ForesTalk

RESOURCE MAGAZINE WINTER 1979



2007-04842

ForesTalk

Volume 3 Number 4 Winter 1979

Executive Editor: **Garth Coward**
Editor: **Cameron Young**
Design: **Ken Seabrook**

ForesTalk Resource Magazine is published quarterly by the Province of British Columbia, Ministry of Forests, Information Services Branch, 1450 Government Street, Victoria, B.C. V8W 3E7. Telephone (604) 387-5985. Designed to encourage interest, discussion and understanding of British Columbia's forest, range and recreational resources, ForesTalk is available free on request. Any material reprinted must give credit to the magazine. Second class mailing registration No. 3863. International Standard Serial Number ISSN 0700-1770. ForesTalk welcomes submissions from professional writers and photographers on themes related to the B.C. forests and their uses. Address enquiries to the editor.

Deputy Minister of Forests:
T.M. Apsey
Director, Information Services Branch:
J.R. Cox

Looking back, the 1970's were highlighted by a growing public interest in natural resource management, and by a major reappraisal by government of British Columbia's forest, range and recreational resources, which culminated in the new forest and range legislation.

Looking ahead, the Ministry of Forests has committed itself to a comprehensive and on-going review of the province's timber, range and recreational resources. The Ministry enters the 1980's facing the important and complex task of putting into practice one of the most challenging resource management programs to be found anywhere in Canada.

Tom Waterland

Hon. Tom Waterland, *Minister of Forests*

Province of British Columbia Ministry of Forests

Like mountain climbers who are now trying to scale Everest without expensive and extensive support, B.C.'s modern horse loggers are trying to clean log the forests without the massive support system that used to sustain traditional horse loggers. In this issue's cover photograph, Kimberley freelance photographer Patrick Morrow was on hand to catch horse logger Kip Hayes of Elko hitching a ride on a down hill grade.

FEATURES

New Trails In Winter Recreation The problem of overcrowding in Crown land winter recreation areas is nothing that can't be solved by a good recreation management plan, plus the good will and cooperation of winter recreation enthusiasts.
By Grant Ellis and John Durkin 3

ForesTalk Interviews Wally Johnson For fisheries and forestry to co-exist in B.C., even greater cooperation between the two is required. So says Dr. Wally Johnson, whose job it is to oversee fisheries management in our coastal waters.
by Jack Danylchuk 8

The Quiet And The Clean Of Horse Logging They will never rival the conventional loggers who rely on mechanization, but horse loggers throughout B.C. are proving something the oldtimers always knew — horses and logging make for a good match.
by Anne Edwards 11

Coast Logger Portraits This unique photographic collection documents contemporary woods workers with remarkable sensitivity and precision.
photo essay by Zbigniew Olak 16

The Ugly Duckling Of The Cariboo Forests Many before him had tried and failed, but Dean Bonlie saw the potential in the decadent cedar trees of the Cariboo and turned a liability into a profit.
by Peter Grant 24

DEPARTMENTS

Letters 21

Collections From frankincense to ice bridges, from bowwood to golf balls, there's more to the forests than meets the axe. 22

People: Gerry Andrews Meet the "good natured grizzly bear" who introduced photogrammetry to B.C.
by Charles Lillard 28

Forest Habitat **The Stains Of Time** Partly an alga, partly a fungus, this often misunderstood plant not only is the first to restore vegetation to a barren land, it also brings colour into our lives.
by Enid K. Lemon 30

© 1979 PROVINCE OF BRITISH COLUMBIA

2007-04842/

ForesTalk

Volume 3 Number 1 Winter 19

Executive Editor: Garth Coward
Editor: Cameron Young
Design: Ken Seabrook

ForesTalk Resource Magazine is published quarterly by the Province of British Columbia, Ministry of Forests, Information Services Branch, 1450 Government Street, Victoria, B.C. V8W 3E7. Telephone (604) 387-5985. Designed to encourage interest, discussion and understanding of British Columbia's forest, range and recreational resources, ForesTalk is available free on request. Any material reprinted must give credit to the magazine. Second class mailing registration No. 3863. International Standard Serial Number ISSN 0700-1770. ForesTalk welcomes submissions from professional writers and photographers on themes related to the B.C. forests and their use. Address enquiries to the editor.

Deputy Minister of Forests
T.M. Apsey

Director, Information Services Branch
J.R. Cox

Looking back, the 1970's were highlighted by a growing public interest in natural resource management, and by a major reappraisal by government of British Columbia's forest, range and recreational resources, which culminated in the new forest and range legislation.

Looking ahead, the Ministry of Forests has committed itself to a comprehensive and on-going review of the province's timber, range and recreational resources. The Ministry enters the 1980's facing the important and complex task of putting into practice one of the most challenging resource management programs to be found anywhere in Canada.

Tom Waterland

Hon. Tom Waterland, *Minister of Forests*

Province of British Columbia — Ministry of Forests

Like mountain climbers who are now trying to scale Everest without expensive and extensive support, B.C.'s modern horse loggers are trying to clean log the forests without the massive support system that used to sustain traditional horse loggers. In this issue's cover photograph, Kimberley freelance photographer Patrick Morrow was on hand to catch horse logger Kip Hayes of Elko hitching a ride on a down hill grade.

FEATURES

New Trails In Winter Recreation — The problem of overcrowding in Crown land winter recreation areas is nothing that can't be solved by a good recreation management plan, plus the good will and cooperation of winter recreation enthusiasts.
By Grant Ellis and John Durkin 3

ForesTalk Interviews Wally Johnson — For fisheries and forestry to co-exist in B.C., even greater cooperation between the two is required. So says Dr. Wally Johnson, whose job it is to oversee fisheries management in our coastal waters.
by Jack Danylchuk 8

The Quiet And The Clean Of Horse Logging — They will never rival the conventional loggers who rely on mechanization, but horse loggers throughout B.C. are proving something the oldtimers always knew — horses and logging make for a good match.
by Anne Edwards 11

Coast Logger Portraits — This unique photographic collection documents contemporary woods workers with remarkable sensitivity and precision.
photo essay by Zbigniew Olak 16

The Ugly Duckling Of The Cariboo Forests — Many before him had tried and failed, but Dean Bonlie saw the potential in the decadent cedar trees of the Cariboo and turned a liability into a profit.
by Peter Grant 24

DEPARTMENTS

Letters 21

Collections — From frankincense to ice bridges, from bowwood to golf balls, there's more to the forests than meets the axe. 22

People: Gerry Andrews — Meet the "good natured grizzly bear" who introduced photogrammetry to B.C.
by Charles Lillard 28

Forest Habitat **The Stains Of Time** — Partly an alga, partly a fungus, this often misunderstood plant not only is the first to restore vegetation to a barren land, it also brings colour into our lives.
by Enid K. Lemon 30

© 1979 PROVINCE OF BRITISH COLUMBIA

NEW TRAILS
IN WINTER RECREATION

by Grant Ellis and John Durkin

There are more than 80 million hectares (200 million acres) of Crown land in B.C., including some of the world's most spectacular geography. Despite that much room to roam around in, outdoor enthusiasts sometimes find themselves competing for the same recreation areas — even in the cold of winter.

Snowmobiling and cross-country skiing, once the interests of a hardy few, have coaxed thousands of B.C. families away from the comfort of their homes to the excitement of the wintery outdoors. Snowmobiling offers speed, mobility and the spray of powder snow. Nordic, or cross-country skiing, on the other hand, is virtually silent, relying on muscle power and a good set of lungs. It can be a family sport, or, for the competition-minded, a vigorous race. These activities are usually carried out in or around forested areas, so are snowshoeing, sled-dog racing, tobogganing, downhill skiing, ice fishing, as well as such gentle sports as snowman-making and snowball-throwing. When too many people crowd into the same area, however, careful planning for the best use of that space becomes a must.

The Ministry of Forests maintains roughly one thousand rustic recreation sites throughout the province. More than one and a half million people are expected to make use of these sites in 1980, but not just during the warm-weather months. In the past few years there has been an explosion of public enthusiasm for winter fun in the woods.

Much of the responsibility for managing recreation on Crown land lies with the Ministry of Forests Recreation Management Branch. Its jurisdiction covers an area larger than the province of Manitoba, which would seem to indicate that there is enough room out there for everyone — with millions of hectares to spare. But recreation areas can't be just anywhere. They must be close enough to communities to be reasonably accessible to many people. They should not interfere with active logging operations. Trails are needed, so are parking lots. There must be a way for emergency help to reach injured people. The forests and rangeland must be protected. The Ministry, under constant public pressure for more recreational land use, has had its hands full keeping up with the demand.

Where public use is heaviest, the Ministry of Forests' six forest regions have developed basic recreation sites — rustic facilities that make it easier for people to enjoy the forest. There are now about a thousand such sites, most equipped with tables, garbage cans and outhouses; some include boat ramps, swimming floats or firewood. And they are in demand: upwards of 1.1 million people visited them in 1978, and the number is expected to grow to as much as 1.6 million by 1980. It exemplifies a trend which Harry Drage, recreation forester with the Ministry's Recreation Management Branch, calls the "dispersed recreation concept" — more people having fun at more places.

In preparing the sites originally, the Branch foresaw heavy warm-weather recreational use of the forests. What it could not foresee was the explosion of public enthusiasm for fun in the snow. The Branch's limited funds and resources were clearly inadequate to accommodate the rush to the winter woods. But great public interest, aided by the active cooperation of several snow-sport clubs, have helped the Ministry fill some of the province's more pressing winter recreational needs.

In 1975, a group of snowmobilers called the Summit Seekers applied to the Ministry's Vancouver regional office for a special use permit. The plan: to construct a warming shelter and prepare a snowmobile trail on Blue Mountain, near Mission in the Fraser Valley. This was an area already used by skiers, as well as snowmobilers, but there was no coordination of activities. The Ministry denied the permit, but did not discourage the general idea. Instead, it referred the Summit Seekers to recreation forester Doug Herchmer.

Herchmer — bearded, wiry, enthusiastic — developed a long-range recreation plan involving both snow-

mobiling and skiing. It called for a parking lot, toilets, and the mapping of suitable trails. The project lurched into gear under the watchful eye of recreation officer Bruce Thomson. While the snowmobilers marked their own trails, the Ministry, with the help of inmates from the Pine Ridge Forest Camp, began hacking a ski trail through dense second growth. But the going was tough; two years later the trail remained unsuitable for extensive public use.

Then, in 1977, more help arrived when a group of cross-country skiers, the Skiers Club of Vancouver, approached the Ministry with a request to finish and upgrade the existing ski trails. This added evidence of public interest in cross-country skiing was enough for Herchmer to make his next move. "We developed a joint proposal. The ski group applied to Canada Manpower for a Young Canada Works grant which was approved. In four months we had the trails roughly cleared." Today, Blue Mountain sports a parking lot, toilets, and 15 kilometres of picturesque, well-marked ski trails. On the other side of a natural ridge a separate trail system beckons to snowmobilers.

Other groups, taking their cue from the cooperative effort at Blue Mountain, have opened up several other developments with the Ministry's help. In the high mountain area off Highway 3 between Grand Forks and Castlegar, the Ministry of Forests and the Parks Branch of the Ministry of Lands, Parks and Housing, along with various user groups, are working together to develop the Paulson ski trails located south of the highway. On the north side, snowmobilers live it up on their own trails. The separation between skiers and snowmobilers has been voluntary from the start, thereby avoiding an almost traditional competition between the two groups. Skiers impede snowmobiles; snowmobiles are dangerous for skiers. Snowmobilers enjoy speed; their noise offends skiers, and their tread often ruins the snow for slender Nordic skis. For the Paulson trails, however, cool heads prevailed. The two groups do not trespass on each other's trails — except when the Rossland

Snowmobiling, cross-country skiing, snowshoeing, tobogganing and ice fishing are just some of the winter recreation activities which draw thousands of British Columbians to Crown land winter recreation areas. When too many people crowd into the same area, however, careful planning by the Ministry of Forests for the best use of that space becomes a must.

PHOTO: BOB FISHER

In the past, cross-country skiers and snowmobilers often found themselves competing for the same snowy landscape. More recently, active cooperation from both groups has helped the Ministry of Forests design and maintain much needed trails for each sport, to everyone's satisfaction.

Sno-Goers bring a snowmobile across the highway to groom trails for the skiers.

Similar help built a five-kilometre trail for the 1979 Northern B.C. Winter Games. The Ministry helped the Smithers Nordic Ski Club to obtain a Young Canada Works grant, and the club went to work at the base of Hudson Bay Mountain. The trail has been a great success, both during and after the games, and recreation forester Alan Mills is pleased: "We've been able to work closely with skiers and snowmobile groups. Through their cooperation we were able to solve many potential problems before they arose. Now we're looking forward to expanding the program, as we are far behind in providing winter facilities and trails."

This growing interest in winter recreation, however, has its negative side. Charlie Cornfield, who was responsible for the Ministry's recreation programs in the Cariboo until July of this year, comments:

"They would drive out onto Dugan Lake to fish — up to 60 cars a day, sometimes. Some would take an old car, cut a hole in the floorboard, park it over a hole in the ice, and sit there with the engine running so they could keep warm and listen to the radio while they fished." He laughs. "The trouble was that they made a mess of the place. There was litter of all kinds, from old tires to plastic to piles of cardboard." Cornfield got together with the Fish and Wildlife Conservation Officer and appealed to the public. They arranged for media coverage and called a meeting with local people. The vandalism and litter problems soon subsided, mainly because of excellent public cooperation.

The Ministry is not always the prime mover in winter recreational projects. Sometimes it has to be a wet blanket. A case in point: The Quesnel Ski Touring Association and the Quesnel Kinsmen's Club wanted to hold a ski marathon over the old Stanley-Barkerville Trail, originally built by the Royal Engineers to carry gold miners to the Cariboo. "It was a good idea," says Cornfield, "but it would have been difficult to remove an injured person who was far from the ends of the trail. Safety is a prime consideration when planning any winter recreation program."

Besides the question of public safety in provincial forests, recreation foresters must contend with the competing demands of logging and recreation. Through careful planning, recreation sites can be located away from active logging areas, but conflicts between the two still arise. And as Cornfield wryly comments: "When conflicts arise, you know who winds up in the middle."

One conflict-free and very successful winter recreation program occurs each year in Prince George, where the Sons of Norway ski club use Crown land to stage *Birchleg* — a vigorous throwback to a Viking legend. In practice, it is less a cross-country skiing marathon race than it is a 24-kilometre event; everyone who finishes is a winner. "It's a family participation program," says Tore Pettersen, recreation officer and former president of the Sons of Norway. By any name, *Birchleg* has great appeal. In 1979, 450 people from all parts of the province came to participate at Tabor Mountain, 25 kilometres south-east of Prince George. Many made the skiing tour in traditional Viking costume. Along the route,

PHOTO: DAVE DUDLEY

soup kitchens and experienced skiers stood by to help them on their way.

Despite this obvious enthusiasm, not everything weighs in favour of winter sports on Crown land. On the negative side there is the ever-present conflict between skiers and snowmobilers; there is the vandalism (by a minority, to be sure) to signs, to shelters, to restrooms and to private equipment on logging sites; there are the illegally-built cabins (trespass cabins), litter, and the problems of maintenance — road clearing, garbage collection, and posting signs. When snow is deep on the trails, branches become a hazard and must be trimmed. When heavy recreation use packs down snow over delicate rangeland it can harm scarce forage. Melting snow around trailside trees is a hazard. And, lurking in the background, there is the potential conflict between logging and recreation. Says Nelson-area recreation forester Larry Atherton: "People have to realize that the area is a multiple-use site. While the Ministry must take into account the needs of winter recreationists in its forest development plans, forest harvesting and recreation must exist side by side. People must expect to see evidence of this fact."

Beyond these specific problems, the Recreation Branch faces the uncertainty of planning for the future as tens of thousands more people head for recreation sites. Harry Drage has been struggling with the problems at the Ministry's headquarters in Victoria: "We've tried to stay away from running a big recreation program without sufficient funds, concentrating instead on special projects that will give us more experience in planning winter recreation. I think we're on the right track — we just need a few more dollars to do basic things like plowing roads and maintaining restrooms.

"We need to be involved," Drage adds. "We are responsible for the forests. But wherever possible we want to leave the management of the trails to the clubs that use them."

From all appearances, clubs such as the Sno-Goers, the Summit Seekers, and the Sons of Norway won't mind the work one bit.

PHOTO: LARRY MOUNTFORD

The enjoyment to be had in winter recreational activites will draw more and more people to woodlands administered by the Ministry of Forests. Meeting these needs will require both careful planning and active public support.

ForesTalk
Interviews

Wally Johnson

by **Jack Danylchuk**

Much of British Columbia's prime timber is located along some of B.C.'s best salmon spawning streams. As a result, forestry and fisheries continually come into contact with each other, and sometimes confrontations result.

Forest harvesting activities such as falling, hauling and road construction, if they are undertaken without regard to possible consequences, can have deleterious effects on fish habitats. But as Dr. W. E. "Wally" Johnson, Director-General of Fisheries Management with the federal Department of Fisheries and the Environment, points out, the decline in salmon stocks from past levels cannot be blamed solely on the logging industry. In some instances, rivers and streams were simply fished out.

However, with the implementation of the new federal fisheries legislation (Bill C-38) and the recent incident at Renell Sound in the Queen Charlotte Islands, loggers have expressed a concern that federal fisheries officers may enforce the fisheries legislation so severely that loggers will be prevented from earning a living. But Wally Johnson claims that it is not the intention of his department to run around the province shutting down logging operations.

The objective of Bill C-38 is simply to protect the fisheries resource. This can best be achieved, Johnson says, by encouraging the growing spirit of cooperation which is developing among the federal Department of Fisheries, the provincial Ministry of Forests and B.C.'s forest industry.

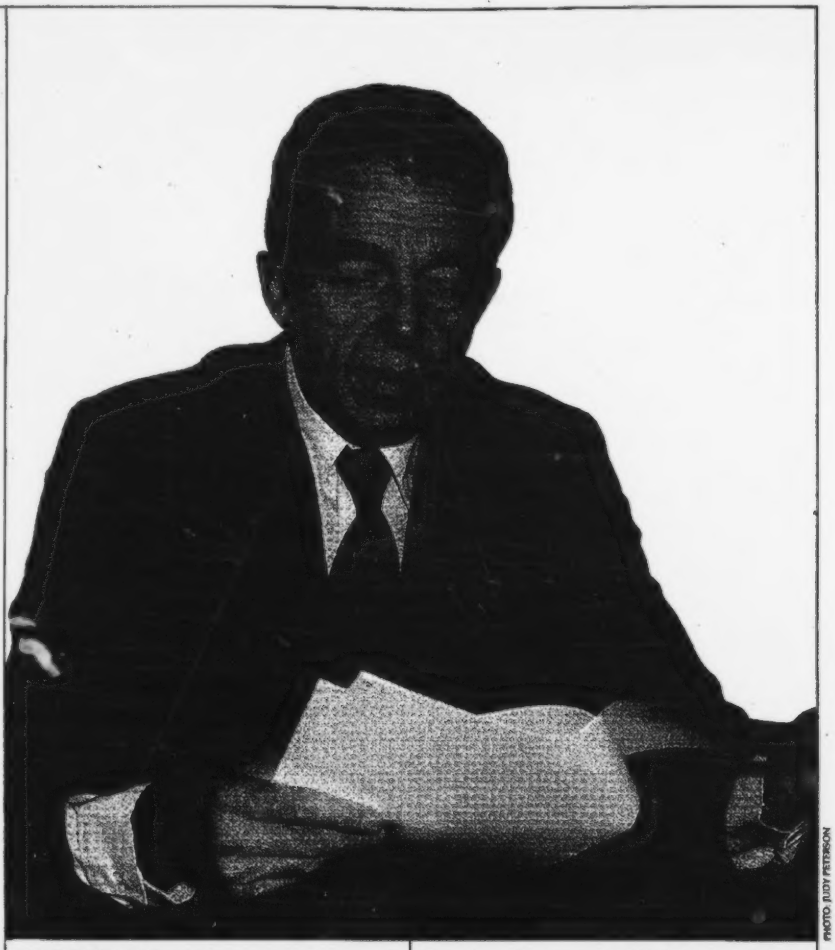


PHOTO: JUDY PETERSON

FORESTALK: The current annual salmon catch in British Columbia waters is in the area of 25 million fish. Historical accounts suggest that there were once salmon runs of twice that magnitude. What part did logging play in the decline of the fisheries resource?

JOHNSON: It is very difficult to pinpoint, but there have been some cases of tremendous damage to rivers through logging activity. On the other hand, you can't lay the decline entirely at the feet of the forest industry. Some salmon stocks were wiped out by over-fishing long before logging occurred.

FORESTALK: Can you give an example of logging harming fish?

JOHNSON: You have to remember that the circumstances are not that well documented, but Cold Creek on the east coast of Vancouver Island is probably an example. There used to be a significant run of pink salmon in that stream before the watershed was logged. But the nature of the river was so changed by logging that we couldn't re-establish pinks in that stream; something we attempted nearly 20 years ago. It probably hasn't yet rehabilitated to the point where it can support salmon.

FORESTALK: Cold Creek was an example of how the logging of a watershed over a short period of time can make a stream unfit for fish. In what other ways can logging affect salmon production?

"Some salmon stocks were wiped out by over-fishing long before logging occurred."

JOHNSON: First, fish have to be able to migrate up a stream and then be able to spawn once they get there. Their eggs lie in the gravel of streambeds throughout the winter. Some of the salmon (coho and chinooks), do not go directly to sea, but live in the streams for three to

sixteen months. We're concerned with these gravel spawning areas, as well as with migration routes and side chanels where young fish rear and feed. It follows, then, that one of the biggest problems we have is the building of logging roads; bulldozer operators can't use a nice gravel stretch in a stream as a roadway without raising hell with the fish. There are other practices, such as cutting and yarding, that can cause siltation which smothers the eggs.

"Bulldozer operators can't use a nice gravel stretch in a stream as a roadway without raising hell with the fish."

FORESTALK: You mentioned that Cold Creek had not as yet rehabilitated itself. Does this happen often, or can a waterway make a comeback after being barren?

JOHNSON: In the case of pink salmon (all of which mature and return only as two-year-olds), if spawning is lost for one year you have eliminated that whole cycle of fish. If spawning were lost for two successive years, it would mean that the pink salmon runs to that stream would be permanently eliminated.

FORESTALK: What happens if a stream is lost for a longer peiod of time, say five or 10 years?

JOHNSON: Then rehabilitation becomes extremely difficult and requires fantastic expenditures of time and money. For example, if you lost all the chinook salmon from a river you would have to find a parent brood stock from a nearby waterway. Then you would have to build a hatchery. That can cost four or five million dollars.

Most of the salmon caught in B.C. are not produced in hatcheries, but from natural spawning fish. It's a renewable resource that swims in from the sea every year, a bounty from God. It is the least expensive source of fish and we have to try to protect it. If we spend hundreds of millions of tax dollars on a salmon enhancement program while letting go of the bird in the hand, I think someone ought to be hung. We'd just be spending money to buy something we already had, but let go.

We're not saying that all logging should be abandoned. We're just asking for a little modification.

FORESTALK: The recent federal legislation, Bill C-38, was a move in this direction? To protect the existing fish resource?

JOHNSON: This country has had a Fisheries Act since Confederation. The Act has always had extremely broad powers. For example, it states clearly that no one may place any substance in water that will have a deleterious effect on fish. No new powers were granted under Bill C-38.

FORESTALK: Then why was it enacted?

JOHNSON: One of the problems under the Fisheries Act was that we

PHOTO: JUDY PETERSON

couldn't take any action until the damage had been done. We had to seek a conviction in the courts before we could do anything about reparation. In other words, the water of a stream had to be so badly affected that fish production was being destroyed. Penalties weren't that stringent. Amendments included in

"If we spend hundreds of millions of tax dollars on a salmon enhancement program while letting go of the bird in the hand, I think someone ought to be hung."

Bill C-38 provide a broader definition of fish habitat to include spawning, incubation, feeding areas and migration routes. The bill also gives the federal government the power to ask for plans in advance of any development that may affect fish. We don't have to wait until the damage is done.

FORESTALK: How successful has the Act been in encouraging prior discussion of development plans?

JOHNSON: Very successful. As you know, we have a regular referral system with the British Columbia Ministry of Forests. When the Ministry receives a cutting application from a logging company it refers the logging plans to our field officers for examination and discussion of any potential problems. The Ministry takes our concerns into consideration and may modify the cutting plan before issuing a permit to the logging company. Thousands of such referrals are handled each year very harmoniously. (Of course no one ever hears about the 99.9 per cent of the cases that are handled without a problem.)

FORESTALK: Have you had the same success in dealing with logging companies?

JOHNSON: We've come a long way. We are now engaged in a joint study (with the Ministry of Forests, Ministry of Environment and the Council of Forest Industries) of long term industry needs for log storage in coastal waters and estuaries, and

"We're not saying that all logging should be abandoned. We're just asking for a little modification."

their associated environmental problems. As well, for several years we have been carrying out a cooperative, multi-agency and industry research project on Carnation Creek in Alberni Inlet, looking into the effects of logging on a coastal stream. These are indications that we are getting broader recognition from industry of the need to work closely together.

FORESTALK: In the last issue of *ForesTalk*, Dave O'Connor of the Truck Loggers Association expressed reservations about the ability of your federal fisheries people and the provincial Ministry of Forests to coordinate forestry and fisheries operations. ("It's never worked." said O'Connor. "It still doesn't work.")

JOHNSON: We have no argument with the provincial government. The Ministry of Forests manages forests; we look after fisheries. O'Connor overlooks the fact that we have worked closely with the Ministry since the mid-1950's. Because of recent actions, the Deputy Minister of

Forests and myself, and our staffs, are working together more closely than we ever have.

There was an unfortunate incident in the Renell Sound area of the Queen Charlottes last winter where the forest industry, the Ministry of Forests and our Department of Fisheries were in conflict, but that isn't commonplace. If it had been handled properly it wouldn't have become the political football it did. It as unfortunate, but coming out of that event is a fantastic stimulation of communication between forestry and fisheries in recognition of this on-going problem. We're already working closely with the Ministry of Forests on examining the whole Renell Sound watershed.

We aren't running around the province shutting down logging operations. And if it does become necessary to shut down an operation, the Ministry of Forests usually does this.

"We aren't running around the province shutting down logging operations."

FORESTALK: How many prosecutions have there been under Bill C-38?

JOHNSON: Not more than half a dozen actions have been taken since the new act was proclaimed. And some of those have been undertaken by the provincial Fish and Wildlife Branch.

FORESTALK: Logging operators commonly complain that the guidelines covering the protection of fish habitats are quite general. There seems to be some confusion in this area.

JOHNSON: Every stream requires different treatment. It would be silly if we had a regulation that simply stated that you must not log within 50 feet or 50 yards of any stream. We all recognize that some of the most productive forest habitats in the province are along stream banks. In some instances, it might be quite safe to log close to a stream bank; in others, it might be necessary to leave a strip of standing timber.

We can't write down exact definitions. Every river or stream is a bit different. When our field officers examine logging plans they use their best judgement, pointing out any practices which might be destructive to fish streams, then proposing alternatives.

FORESTALK: Your research activities suggest that you are seeking to establish general principles and guidelines in this area.

JOHNSON: Yes, that's one of the things we're striving for. We have committed ourselves to on-going research and development of a working relationship with the Ministry of Forests and the forest industry. The forest industry has said that the decision-making process is not clear, that it doesn't always know what to expect. We want to know how to

PHOTO: JUDY PETERSON

better manage the interface between fisheries and forestry. But you have to bear in mind that we have a great range of people (normal humans, not clones) working in the field, and that they can make different kinds of decisions depending on different situations.

FORESTALK: But that's a concern often expressed by loggers, namely that Bill C-38 will be administered differently in different areas of the province.

"We want to know how to better manage the interface between fisheries and forestry."

JOHNSON: As I said, all fish environments are different. This prevents the establishing of hard and fast rules. The main thing is to work together to avoid confrontation and any real damage to the fisheries resource.

FORESTALK: Do you have enough people to do the job of managing B.C.'s fish populations?

JOHNSON: No, we're really short. That's part of the problem. We have to examine thousands of cutting permits, plans and applications every year. Logging activity in B.C. has increased several fold since the 1950's. Fisheries management has become complex, but we have very few more staff and resources to deal with problems than we had 15 years ago. However, I'm confident that our needs will be recognized.

"Where we have evidence of actions that will have a deleterious effect on salmon stocks, we will act."

FORESTALK: Do you have any way of estimating what your fish protection measures cost the forest industry?

JOHNSON: It's difficult to set a cost. An earlier study addressed the problem of different costs associated with various road construction techniques. At this point we can't weigh all the various possibilities in terms of costs to the forest industry, as opposed to a potential loss of fish. It can't be answered for all streams for all time, because conditions change. What we have to do is get a better idea of the cause-effect relationships. But where we have evidence of actions that will have a deleterious effect on salmon stocks, we will act.

It's just too bad that whenever a fisheries-forestry interaction comes up for discussion it always seems to be in the context of fisheries *against* forestry. That's unrealistic. We're not saying that every logging action is harmful to fish; we're not advocating that the whole province be made into a national park. Rather, we're saying that multiple resource use and effective resource management is essential if people are going to keep eating, and enjoying the good life in B.C. Our Department, as well as the Ministry of Forests and the forest industry, all recognize the necessity of multiple resource management. The only way we are going to achieve it is by working more closely together. I am confident that we are seriously heading down that road. ◻

THE QUIET AND THE CLEAN OF HORSE LOGGING

by **Anne Edwards**

photography by Patrick Morrow

British Columbia's modern horse loggers appreciate the irony of being pioneers. They, more than anyone, understand the rich heritage of the original horse loggers, a heritage now replaced by mechanized cutters, skidders and loaders. Today's horse loggers are combining the best of a rich tradition with their own knowledge and experience. But what they also gain is a way of life to which they are committed, a life of both "damned hard work" and personal satisfaction with the forest environment.

It has been some time since horses were an integral part of the logging scene in B.C. Today's horse loggers are few in number and work alone, using a horse to skid individual logs to the roadside for mechanical loading onto trucks. Bill Oestrich (bottom and previous page) does tree thinning work with his Percheron "farm horses" for Crowsnest Industries near Elko.

Like mountain climbers who are now trying to scale Everest without the extensive and expensive support which Sherpa carriers provided their predecessors, modern horse loggers are trying to clean-log the forests without the massive support system that used to sustain traditional horse loggers. These loggers have no regularly and fully supplied kitchens or bunkhouses, no intensive rail networks, long wood flumes, or holding ponds beside spring creeks. Instead, they skid their logs behind a single horse, or maybe a team, without gouging the soil or the other trees, to the side of a primitive road for pick-up by a self-loading truck.

An investment of $5,000 can get most loggers a team of draft horses and harness. Operating costs run from $200 to $400 a month, and the logger can clear $50 to $80 a day. "It's a living," says Frank Soles of Cranbrook, who hopes to better his performance with practice.

Jack Wright, forester with St. Regis Ltd. at Hinton, Alberta, says a horse can skid as cheaply as a wheeled vehicle, but the support system for horse logging is too expensive. His comments refer to the horse logging operation which St. Regis operated until about 1970 in an area east of Jasper National Park. It was just like the logging camps of the turn of the century; a complete settlement with huge barns, many horses, cookhouses and bunkhouses. Here, horses provided all the motive power for the operation. "If a local man and his horse alone could do the work, it would be economical. It's just the support system that's too expensive," says Wright.

Wright has, in fact, described today's logger and his method. The contemporary horse logger falls and bucks his logs, then, one by one (small logs may be choked two or three together) he hooks them to the singletree and his horse hauls them to the road for loading. A horse can pull more than his weight, which can be from 1500 to 2000 pounds. The faller usually will see that the horse skids the logs downhill. Although sawmills prefer 32-foot logs, the horse logger is often forced to buck his logs into 16-foot lengths. This shorter length, which is one of the major drawbacks to horse logging, is determined largely by forest density, topography and tree size. Also, a flat or slightly up-hill skid will cause a logger to buck bigger logs into the 16-foot sections.

A good horse working with a good teamster has the fluid rhythm and efficiency of a dancer. Sometimes without a spoken command, a horse can snake a log through the trees as though it were greased and cushioned with an invisible extra bark. But the teamster has set it up, harnessed and shod the horse correctly, never giving it a load it can't start so the horse knows it *must* move when hitched — tricks of a trade that are almost, but not quite, forgotten.

Of the 20 or so horse loggers trying to make a go of it in B.C., the most experienced is Stewart Fawdrey of Errington on Vancouver Island. He has logged and farmed all his life, been a horse logger for 35 years, and has contracted for forest clearing and thinning with the Ministry of Forests for 15 years. Presently, his mainstay is supplying firewood for two government campsites. He considers the ways of the new horse logger super-modern and super-efficient, because the logger does more than a machine can do, and without waste.

On the Queen Charlotte Islands, Adolph Bitterlich uses a special Austrian breed of horse for thinning and stand improvement. He breeds Haflinger horses, smaller than draft breeds; he hopes to start a school for

horse loggers, and actively politics for horse logging. He believes that in 40 years, one per cent of B.C.'s harvest could be done with horses, but feels it will take that long to gather the horses and train loggers.

Bitterlich lives near Smithers, where, he says, sawmills are crying for wood and the economy is crying for tourists. "You can take horses into the woods, extract millions of board feet of timber, and no one is the wiser. In fact, the forest is better off." Trees are thinned, disease is lessened, and the remaining tops and branches make humus for a future crop. The narrow trails that horses leave are ideal for hikers. Bitterlich expects that the new Forest Act will be only the beginning of a new, silvicultural approach to logging.

Lorne Dufour of Salmon Arm, like Bitterlich and Fawdrey, strongly emphasizes the suitability for recreation of a horse-logged area. And he emphasizes the value of the absence of noise. Without machine noise, the birds stay around to eat the insects. Dufour and his wife, Diane, live on a timber lease where they salvage logs with a team of Clydesdales. An ex-teacher, ex-fisherman, ex-you-name-it, Dufour revels in his environment and hopes to publish a book of poems about his life. Recognizing that machine logging will not be replaced by horses, he still comments trenchantly: "Horse loggers are the only people in the bush doing it right."

Frank Soles got the chance to put his three horses into the bush when Galloway Lumber near Cranbrook wanted some logging done which would otherwise have had to wait until freeze-up. A long-time logger, he was also interested in horses and in treating the forest environment with respect. "In some places where machines have logged, there is literally nothing left," he says.

Bill Oestrich has used his horses on a contract with Crows Nest Industries (CNI) in Elko since February, thinning both bad and good stands. In the bad stands, cutting small logs, he "stayed afloat," where a conventional logger "wouldn't have made any money," but it's too soon to know how well he did on the good stands. Oestrich's skid trails leave no damage. "That's partly why I'm in horse logging. I'm old enough to remember when they logged with horses and then logged the same place again."

Among industry people, Dave Mutch, Woodlands Manager for Crows Nest Industries, may be the most enthusiastic supporter of horse logging. He is taking a keen interest in the work Oestrich is doing for CNI. "There are three areas for cost savings: you need no skid trails; you negate the need for landings and their related problems; and

In today's world of mechanized logging, the tricks of the horse logging trade are known to only 20 or so horse loggers currently working in B.C. Frank Soles (top), who logs for Galloway Lumber near Cranbrook, moves along double time behind his Belgian horse, Jerry, swapping the reigns around a tree trunk as he goes. Stuart Fawdrey (above) of Errington on Vancouver Island, is the most experienced horse logger working today, and takes a special pride in Rose, his Belgian colt. "I don't keep horses," says Stuart. "Horses keep me."

For Lorne and Diane Dufour (below and opposite page) of Salmon Arm, horse logging is a family affair. With the aid of a pulley system they stack their logs over the winter, ready to be picked up by a local sawmill owner when the road improves in the spring. Above all, Lorne stresses the merits of "the quiet, the clean and the slow of horse power."

you need little or no post-treatment in the area," says Mutch. The three items could cut costs by 15 to 20 per cent, thereby offsetting the slower pace of the horse logger. Given a complete horse logging system, a logger with one horse could produce six cunits (200 cubic meters) a day, and "no logger would have trouble surviving on that."

Ministry of Forests personnel seem to be generally favorable to horse logging, although most are not actively pushing for it. Almost all agree that there certainly is a place for it. They recognize that a horse can think and feel, unlike a machine, and thus does not bump into and damage standing trees. They know that a horse can work all year long, even through spring break-up, with very little soil disturbance or noise. They know that for certain age classes and species a thinned forest brings a higher yield faster, and that horses can do an excellent job of thinning.

But they also know that they work within a system geared to economic efficiency. Under the "least cost method" appraisal system the Ministry looks at a prospective logging operation and considers how it can be logged most economically while still meeting the silvicultural objectives for the area. It then charges a stumpage rate (cutting fee) that allows for those logging costs while providing the operator and the Crown with a reasonable return on the logs harvested. If horse logging costs are higher than conventional logging methods, the contract normally will go to the machine logger, not the horse logger.

Stumpage rates charged a logger for harvesting trees on Crown land sometimes are lowered to offset higher than usual logging costs. This is only done, however, when a specific (more costly) logging method is called for, such as to reduce the impact of logging on an ecologically sensitive area. Says Frank Renshaw, Ministry appraisal officer in Nelson: "I can lower the stumpage rate only when conventional logging methods would not provide the required minimization of effect on the environment."

Such cases are rare. Renshaw has adjusted the rate for helicopter and high-lead logging in the Nelson Forest Region, and he has given some stumpage relief to Bill Oestrich's horse logging work for Crows Nest Industries. In this case Renshaw allowed a logging cost of more than $45 per cunit, whereas the normal cost allowance would have been under $20 for a conventional operation on similar terrain. By allowing higher logging costs, the stumpage rate charged Oestrich was lowered proportionally.

"The Ministry recognizes that horse logging has a role to play in timber harvesting," says Renshaw. "But until horse logging becomes more widespread, its recognition as a conventional and competitive method for normal logging operations lies somewhere in the future."

Despite the drawbacks associated with horse logging, young men will still give up promising careers to respond to the lure of logging with horses. Dick and Eldon Wales of Cranbrook, for example, recently put up $2,500 each to get into the business. They bought two "cayuses" from an Alberta horse trader and quit their regular jobs. They will have to learn the business from scratch, however, as there are no schools for aspiring horse loggers, although Winlaw Wood Farmers (WWF) in the West Kootenays started a project last year which trained six or seven people.

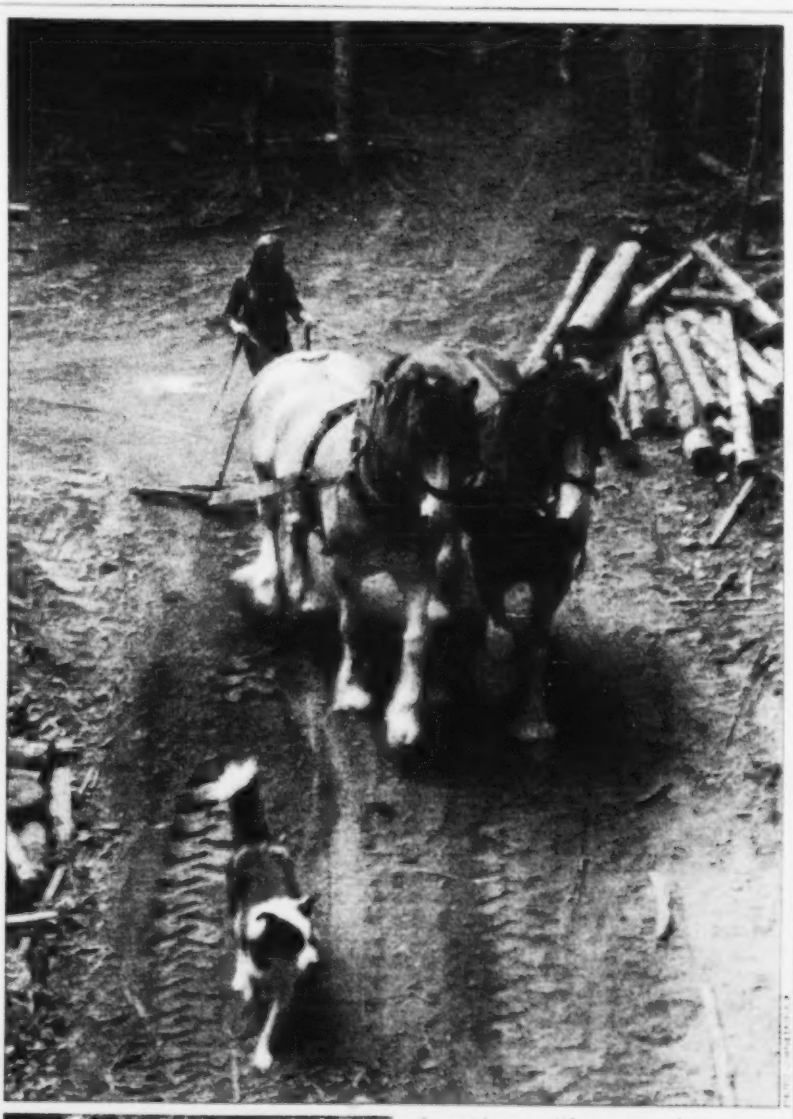
WWF is still working on the project and has the financial support of the joint federal-provincial Agriculture and Rural Development Subsidiary Agreement (ARDSA). Jack Steele, ARDSA coordinator in Victoria, says his agency put up $43,730 for a year-long work and research project which would allow training in horse logging and an assessment of its effectiveness. WWF was to train workers and employ them in logging with horses, both for private wood-lot owners and on Crown land for a forest company. The Crown land work fell through, however, with some bitterness. Conrad Evans of WWF says tersely: "The Forest Service hates horse loggers."

According to Steele of ARDSA, Winlaw Wood Farmers did not get the expected horse logging work on Crown land mainly because of changes of ownership within the forest company to whom the land is licensed. But Steele is anxious to see good logging where ARDSA is involved, mostly in range development. "We are trying to be very careful with coordinated resource plans," he says, and horse logging "makes ecology-conscious people happy."

Al Pement, a Forest Ranger in Smithers, believes that horse logging will have to be developed more thoroughly as B.C.'s forests are harvested the second time around. "On our first pass, we left the environmentally sensitive areas behind, but with second pass logging we are going to have to concentrate our cutting within these sensitive areas. We will have to develop different logging methods, such as horse logging, so that we can," he says.

Looking ahead, Chief Forester Bill Young is optimistic about the usefulness of horse logging when it comes to the management and thinning of second-growth stands. "Equipment which is efficient and cost-effective for harvesting old-growth trees is simply not an acceptable means of selectively thinning young forests," he points out. "Commercial thinning with horses, rather than with conventional machinery, could make the difference as to whether a particular thinning operation is carried out or not. In fact, the special requirements for commercial thinning under selective conditions could bring about a new era of horse logging."

B.C.'s modern horse loggers will never threaten conventional loggers. The most encouraging estimates suggest that horse logging may one day account for one tenth of one per cent of the province's total cut. Horse loggers are showing us, however, that they can develop a satisfying life-style and make a reasonable living by the white-glove handling of the forest, where machines would grab and mangle. The growing silvicultural needs of the forest industry, together with a citizenry happy to support more careful methods of timber extraction, form a solid support base for the few who choose what one horse logger calls "the quiet, the clean and the slow of horse power."



Sometimes without a spoken command a horse can snake a log through the trees as though it were greased and cushioned with an invisible extra bark. But the teamster has set it up; harnessed and shod the horse correctly, never giving it a load it can't start so the horse knows it must move when hitched – tricks of a trade that are almost, but not quite, forgotten. B.C.'s horse loggers will never pose a threat to conventional loggers operating with modern machinery, but when it comes to selectively thinning second-growth forests, horse loggers often have the edge. This emerging silvicultural specialization could bring about a new horse logging era in B.C.

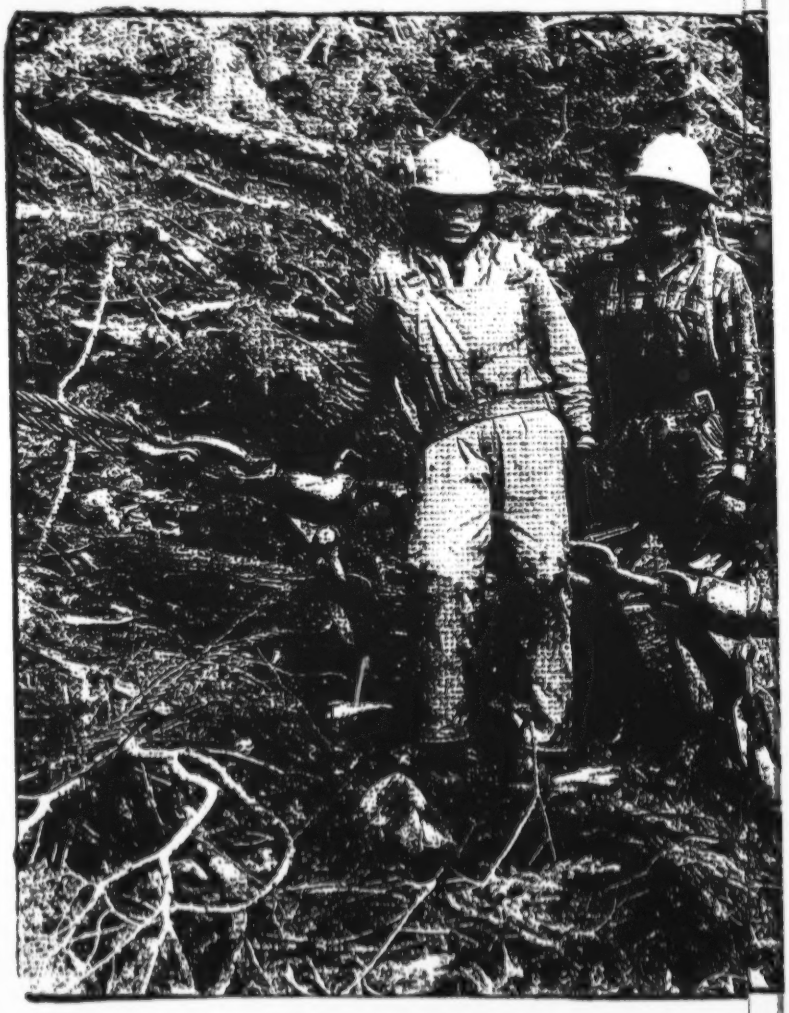
Coast Logger Portraits

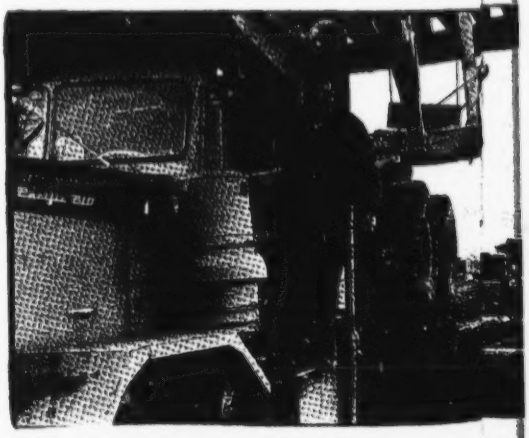
A photo essay by **Zbigniew Olak**

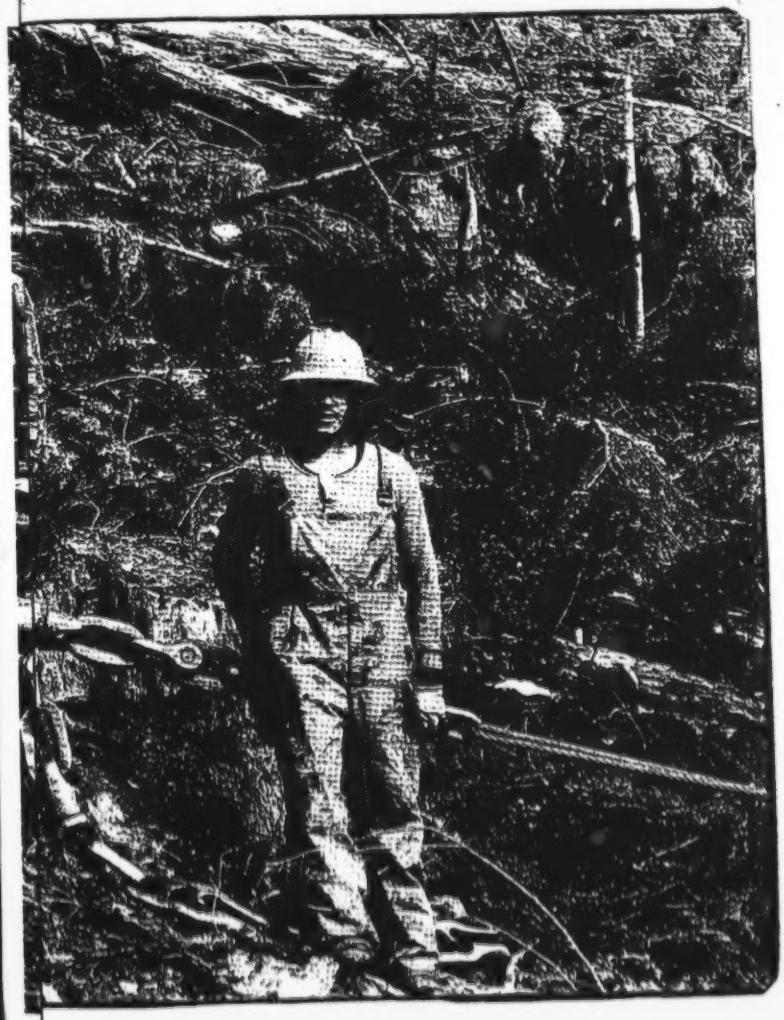
Coast loggers of today work in an environment far different from that of their hand logging predecessors. The history of logging in B.C. has been well documented in early photographs; these portraits attempt to carry on that tradition by documenting today's coast loggers before they, too, become a part of loggers' history.

The people who work in the coastal forests are truly rugged individualists, and this individualism shows on their faces. Not always evident, but always present, is their respect for powerful machinery and for nature. They have their own way of looking at things, and there is a special sense of humour here.

Whether it is lugging chain saws or tail blocks through the jungle-like rain forests, fighting chokers in the underbrush, or holding a truck load of logs on a steep switch-back, every coast logging job demands all your strength and all your skill. Keeping your wits about you is a way of life.







The rough terrain, the rain and insects make up the work setting. The jobs revolve around noisy and often temperamental machinery. Perhaps it is overcoming these challenges which the loggers find attractive. Few loggers would choose to work at anything else. As one logger says: "The bark gets in your blood."

Coast loggers are always in motion —scrambling up hillsides, hiballing down logging roads, walking to the next tree to be felled. Then the camera causes them to hold still, and the story of a particular time and place is preserved in images.

Loggers' sports test skills no longer in use on the job. In this way the heritage of specialized and often obsolete techniques can be passed on. As new job techniques are developed, the skills they replace will live on in the world of loggers' sports. And there will also be the photographs.

The photographs in this photo essay are selected from a larger body of work begun in 1977 by Zbigniew Olak who lives and works as a photographer on Vancouver Island.

LETTERS

I would like to make a few additional comments to the article, "Arbutus: A Tree Alone" by Gary and Judy Green in the Summer 1979 issue of ForesTalk. A few years ago I was hiking in the mountains of Morelos, Mexico, and I came across a tree that looked amazingly like the Arbutus. A little further investigation revealed that indeed it was Arbutus xalapensis, or Madrono Borracho as the common name is in Mexico. I have not been able to determine the extent of the Arbutus in Mexico, but Oscar Sanchez in "La Flora del Valle de Mexico" mentions its presence near Mexico City, which would refute a couple of points in the article, namely that the Arbutus exists approximately 1000 miles more southerly than mentioned; that it grows at an altitude of 7000 feet and not only below the 1000 foot level; that it can be found 200 miles inland and not merely five miles.

Ib Nielsen
Delta, B.C.

There are three varieties of Arbutus trees in North America. The Arbutus referred to in the ForesTalk article, and the only one occuring in B.C., is the Arbutus Menziesii. The Arbutus xalapensis you saw in Mexico has two varieties, texana and arizonica, both of which are also found in the southwestern United States. The Arbutus texana can also be found in Guatemala. Unlike the Arbutus Menziesii, the texana and arizonica varieties don't confine themselves to coastal and low-level areas.

If you would like to be added to ForesTalk's mailing list — there's no charge — just drop a note to:

ForesTalk
Information Services Branch
Ministry of Forests
1450 Government St.
Victoria, B.C.
V8W 3E7

Answers for ForesTalk Crossword
(see page 23)

I would like to react to your article, "The Sun Rises On a New Market", by Graham A. Wallace in the Summer 1979 issue of ForesTalk, which deals with Canadian efforts to create a new market for standardized lumber in Japan. The article begins by praising the traditional homes of Japan, made of "beautiful posts precisely joined to intricately notched beams," and it explains that: "Today, these traditional homes still form the centre of Japanese family life and culture." After so establishing the importance of traditional Japanese homes, the article goes on to state that it is desirable and "the onus of British Columbians" to have the Japanese change their living environments so that they can import Canadian lumber.

I object to the attitude of the industry which seems to be primarily motivated by selling lumber and making money, even to the extent of manipulating a valuable cultural aspect out of existence. The industry seems to lack a set of values which would preserve, protect and yes, even promote cultural variety and traditional lifestyles. I am disappointed to see your magazine present an article which encourages manipulation of human lifestyles as a means of creating new commercial markets, and which chooses to ignore looking into the possible human consequences of such marketing techniques. I would like to see your articles obtain a higher degree of critical examination of its topics, rather than being so blindly glossy and glorifying.

Frank Hoorn
Vancouver, B.C.

As Graham Wallace's article points out there is a great demand for new housing in Japan. The article also indicates that Japanese carpenters, working with the traditional post and beam style of wooden house construction, cannot keep up with that demand. As a result, the Japanese have turned to high-rise steel and concrete in a big way. However, those Japanese who prefer to live with wood rather than concrete, but who do not have access to wooden homes built in the traditional way may have the option of living in wooden homes built according to the North American platform frame construction method using standardized lumber from B.C. Rather than "manipulating a valuable cultural aspect out of existence" as suggested, the use of B.C. dimension lumber in Japan, as an alternative to steel and concrete but as a replacement for traditional wooden housing, has the potential of helping the Japanese to preserve their long standing tradition of living with wood.

On a visit to B.C. last June I read four or five issues of ForesTalk at our son's place in Kaleden and found them to be a wealth of information, even down to identifying an orchid we had seen while stopped by the roadside. This turned out to be the Calypso orchid which was featured in your Spring 1979 issue. Till then I had no idea what it was, as I had never heard of or seen one before.

Mrs. L. Gibson
Drumheller, Alberta

I've enjoyed the articles by Charles Lillard — "The Road North", in the Winter 1978 and Spring 1979 issues of ForesTalk. They brought back memories of a trip a friend and I made in 1947. We travelled from Prince Rupert to Wrangel, by boat to Telegraph Creek, by truck and scow to Dease Lake, Dease River to Watson Lake, on to the Alaska Highway to White Horse, then on to Dawson City by boat — a wonderful adventure.

(Miss) L. R. Nason
Victoria, B.C.

Thank you for sending me each issue of ForesTalk since its inception. As a professional visitor to the forests of B.C. a decade ago, I find ForesTalk to be a lively little magazine full of interesting topics which quarterly keeps reminding me of what a magnificent natural heritage you have in your forests. I hope you continue to exploit the sportsmen, the tourists and the lumber in the forests, but above all, do keep up the reforestation for sustained production lest you end up with largely treeless areas such as are found in countries like Britain (less than 10 per cent). Man has removed the forest in the past and now cannot understand any 'change' back to forestry that cannot produce a mature forest habitat overnight. Replant your conifers today; they are tomorrow's bread and butter.

N. P. Danby
Wales

Letters to the editor provide an opportunity for our readers to discuss topics arising out of ForesTalk. Letters for publication must carry the sender's name and address. Views published are not necessarily endorsed editorially. ForesTalk reserves the right to edit for publication.

MOVING?

Please let us know.

ForesTalk, Information Services Branch
Ministry of Forests 1450 Government St.
Victoria, B.C. V8W 3E7

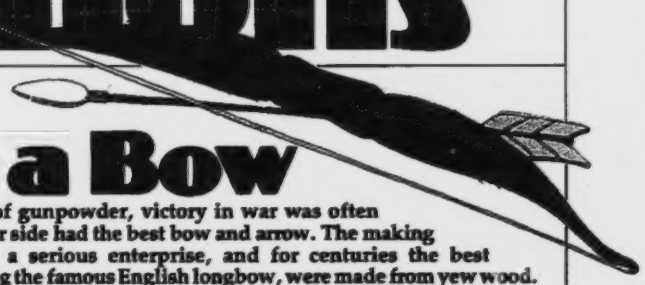
Collections

An Impression of Our Wilds

It is that feeling of fresh loneliness that impresses itself before any detail of the wild. The soul, or the personality, seems to have infinite room to expand. There is no one else within reach; there never has been anyone; no one else is thinking of the lakes and hills you see before you. They have no tradition, no names even; they are only pools of water and lumps of earth, some day, perhaps, to be clothed with the loves and memories and the comings and goings of men . . .

(Rupert Brooke, a letter).
(Rupert Brooke was a famous British poet who toured Canada in 1913.)

Take a Bow



Before the invention of gunpowder, victory in war was often determined by whichever side had the best bow and arrow. The making of bows was therefore a serious enterprise, and for centuries the best bows in Europe, including the famous English longbow, were made from yew wood.

Yew, however, has sometimes been mistaken for bowwood, which is a different species entirely, from a different part of the world. Bowwood is a low-growing deciduous tree native to the south-central United States. Its true name is the Osage Orange tree. Among Indians of this continent, bowwood was highly prized but in short supply. When bowwood was unobtainable, the Indians would fashion their bows from hickory, although the wood of the Osage Orange tree made a superior bow. It didn't take European settlers long to refer to the Osage Orange tree as bowwood.

The Osage Orange tree, by the way, does not produce oranges; its wood and roots are orange coloured. "Osage" is the name of the Indian tribe in whose territory the tree was first identified.

Gutta Percha (then rinse)

In some dental operations (particularly root canal work) a tree product called gutta-percha is used. Gutta-percha is a milky, reddish-brown substance exuded by certain Malaysian trees. It has the remarkable property of becoming malleable in high-temperature water, then holding shape with woodlike hardness in temperatures below 50 degrees Fahrenheit. Durable and insoluble in water, gutta-percha has been vital in the manufacture of such products as submarine cables, and, until the 1920's, golf balls. It has also been used as a substitute for leather, in the making of rubber tires, as a form of chewing gum, and as insulation for copper wiring.

Candy Boy

Monday morning. The whittlers (loggers too old to go into the woods) are still on the purring rack (in bed) when the fuzz face (boy) leaves the ram pasture (bunkhouse).

"That high-pocket (tall) soupbone (thin man) is the candy boy (boss's favourite) 'round this show (logging operation) now," remarks One-Eye to Mick, beside him.

"Yeah, hell for antsy (over-anxious to get going), a real quick lick (too hasty, foolish)" says Mick.

"Knows more tricks than a monkey on a clothesline."

"Looking for a stretcher ride if you ask me. Likely to be lookin' at daisies from the root end (dead) this year."

"Naw, he's got his head cut in (on straight). That kid's on the prod (an eager beaver), but you wait, where he sits is goin' to be the head of the table."

adapted from Woods Words by Walter F. McCulloch, Oregon Historical Society, Corvallis, Oregon.

Most Heavily Forested Continent

South America is the world's most heavily forested continent. Its total forest area covers 9,580 million hectares (2,365 million acres) or 54 per cent of the land mass. North America, by comparison, has only 733 million hectares (1,811 million acres) in forest, a figure which represents only 39 per cent of the continent. The least treed continent is Asia, which is only 19 percent forested.

Kenaf

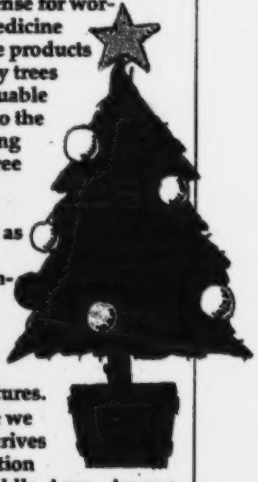
An East Indian fibre crop which may reduce the demand on forests for pulp and paper products is Kenaf. As a short-term rotation crop, Kenaf has been grown for fodder. The pulp of the plant, however, recently has been found to be equal in quality to high quality pulp wood. Kenaf can be manufactured into just about any paper product, from teabags to cigarette papers. B.C.'s trees take about 100 years to grow to maturity, while Kenaf takes 26 weeks; should making paper from kenaf ever become a major commercial enterprise, the impact on our province's pulp and paper industry could be considerable.

Cold Crossing

While most forest companies are concerned with keeping winter ice off their bridges, British Columbia Forest Products in Mackenzie uses ice to build its seasonal bridge on Lake Williston. As the lake begins to freeze, tugs tow into place a mat of logs two kilometres long. The mat is made in 160 metre sections and the logs lie side by side, bound by wire rope. When the ice is thick enough, a crew takes a typhoon pump out to the bridge and, punching a hole through the ice, pumps lake water over the bridge surface. This process is repeated until the bridge ice is at least 90 centimetres thick and can hold light loads. A bridge surface of 1.2 metres will safely carry an 1800 kilogram payload.

Christmas Trees

The trees originally associated with Christmas were frankincense and myrrh. Both these trees, found in the Arabian Peninsula and Abyssinia (modern Ethiopia), produce an aromatic, bitter gum resin, valued in ancient times as incense for worship, and also for medicine and fumigation. The products of these low, scrubby trees were considered valuable enough to be given to the newborn Christ, along with gold, by the three wise kings.

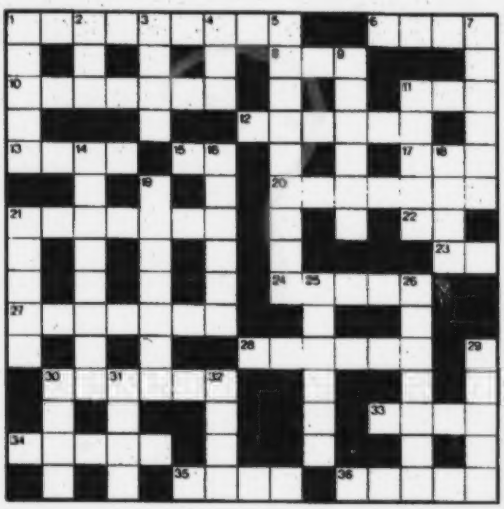


Myrrh is still used today as a tonic, and as an ingredient in the manufacture of toothpaste and perfume. As incense, both frankincense and myrrh are still used by Near Eastern cultures.

The Christmas tree we place in our home derives from a German tradition dating from the Middle Ages. Among English speaking peoples, the tradition of the Christmas tree was popularized by Prince Albert, the German consort of Queen Victoria, when he introduced the Christmas tree to England in 1860.

Do you know any interesting facts about forests? Don't hold them back. Collections deals with anything from machinery to forest products and uses, from unusual facts and interesting people to forest legends. We invite you to contribute. Mail submissions to: ForesTalk — Collections, Information Services Branch, Ministry of Forests, 1450 Government St., Victoria, B.C. V8W 3E7. Information should be brief, accurate, and sources included where possible.

ForesTalk Crossword



CROSSWORD: Philip Linfield

ACROSS

1 Flat panel made from pressed wood fibres (9)

6 Most conifer forests fall within the temperate ____ (4)

8 Deciduous tree susceptible to a dutch disease (3)

10 A descriptive term for a tree that has become full grown (7)

11 Root systems are ___ terranean (3)

12 A tree that weeps (6)

13 To form a pond in streams, in which they can build lodges, beavers construct ____ (4)

15 BC's biggest customer for forest products outside Canada is the ... (abbreviation) (2)

17 Those that be, ___ (3)

20 The flower of a seed plant, promising fruit (7)

21 Emblematic of British Columbia (7)

22 A saucy clue denoting engine strength (abbreviation) (2)

23 BC's fourth largest customer for forest products is ...M (Market) (abbreviation) (2)

24 To insert a shoot into another plant, a process frequently employed in silviculture (5)

27 Bringing down a tree; or something you find yourself doing if you clumsily stumble into a log (7)

28 The kind of measurement for lengths of wood; or anything that is measured in a straight line (6)

30 Branches or shoots of a plant prepared for rooting while still attached to the parent plant; or the earth's strata is in many ____ (6)

33 At the first Christmas they brought, along with gold, gifts of frankincense and myrrh, which are aromatic gum resins from Near Eastern trees (4)

34 Main axis of plant; or something predators do (5)

35 We tend to invite trees into our houses at this time of year (abbreviation) (4)

36 Food miraculously supplied to the Biblical Israelites in the desert; it has been called exudation of European ash, lichens and algae, and is also a kind of North African tree (5)

DOWN

1 Moist and damp like the coastal forests (5)

2 Fungus, helpful in breaking down forest debris, is the main agent in making pine needles ___ (3)

3 To consume by fire (4)

4 When accidents occur, administer first ___ (3)

5 Process of removing branches (9)

7 The British Columbia one is dogwood (6)

9 The tender ripeness of fruit; or the gentleness of maturity — autumn is the "season of _____ fruitfulness" (6)

11 Sound of moving through water (5)

14 Beautiful flowering tree associated with the old south (though it is found in B.C.) (8)

16 Material (often cedar) forming the outside surfaces of houses (6)

18 A stout cord (not of wood) of strands, fibre or wire, twisted or braided together (4)

19 A fire the French might think is good (7)

21 The kind of wood that comes onto a beach (if you get my _____) (5)

25 The person who oversees the forest (6)

26 A wild tract of land might be said to have rough _____ (7)

29 Sub-Arctic coniferous forest in Russia between tundra and steppe (mostly spruce and fir) (5)

30 Thin wood stripping used in construction (4)

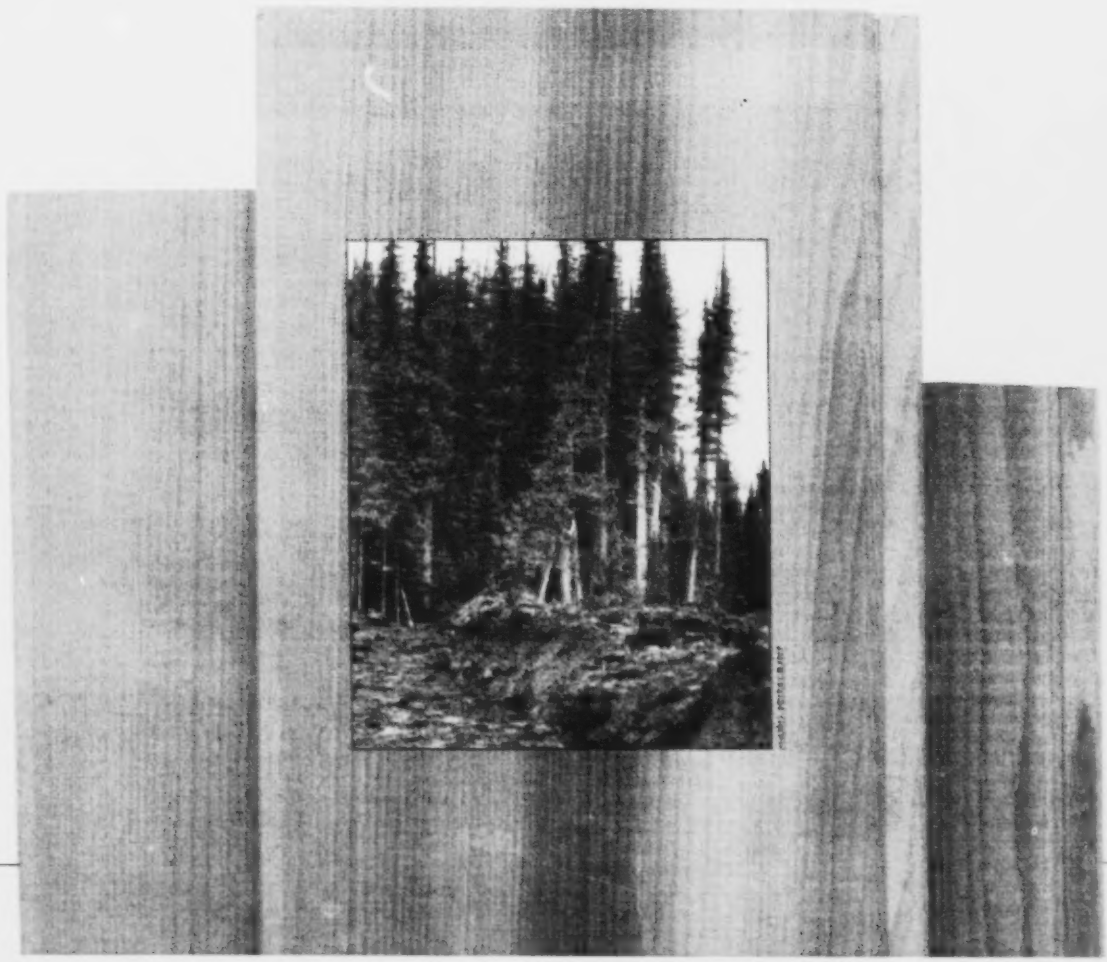
31 You'll have a merry time at 35 across with this log (4)

32 The main trunk of a plant (akin to 34 across) (4)

THE UGLY DUCKLING
OF THE CARIBOO FORESTS

by Peter Grant

Cedar siding: you can see it on new houses everywhere. Rough-faced or smooth, channeled or V-joint, it has fast become a favorite building material throughout North America. Besides its good looks the wood is almost indestructible. Recently, cedar products have claimed much higher prices than any other of B.C.'s forest products. Small wonder, then, that lumber producers and the Ministry of Forests are taking a closer look at B.C.'s stock of cedar trees. Our coastal rain forests have long supplied international markets with a full range of cedar products, but cedar also grows in many parts of B.C.'s interior. Interior cedar, however, doesn't grow as big as the giants on the coast, and most of it is now overmature with dead tops and rotting cores. Who would think that anyone could build a thriving industry out of these rotten old trees?



To most outsiders, the dry stretches of B.C.'s interior plateau — the Cariboo — is synonymous with cattle ranching (the Williams Lake Stampede rates as the biggest rodeo this side of Calgary), but the mainstay of the Cariboo's economy isn't cattle; it's lumber. In the valley of Williams Lake Creek, the stampede grounds lie peacefully idle while two huge sawmills hum a half mile away.

The wet-belt forests, which provide the bulk of this timber, start about 40 kilometres east of Williams Lake on the western fringes of the Cariboo Mountains. Thousands of cubic metres of spruce, balsam, pine and fir are loaded each week onto the trucks at logging sites near Horsefly and Likely. Besides these commercially valuable whitewoods, however, the Cariboo wet-belt forests also produce large volumes of cedar, a species which is turning out to be the ugly duckling of the Cariboo forest industry.

There is a lot of cedar in the Quesnel Lake area, but, until recently, most logging operators with quotas — a licence to cut a certain volume of Crown timber over a number of years — usually burned cedar as slash. It was considered useless because the cores of most of the trees are rotten; it simply wasn't economical to log.

Today, times have changed. Cedar is now a valuable part of Williams Lake's economy. In the past four years a stable cedar siding industry worth about $2 million a month has sprung up; three active sawmills supply markets as far away as the state of Georgia.

Why the sudden change? A six-year campaign by the Ministry of Forests Cariboo Regional Manager for cedar utilization certainly helped, but the cedar story really belongs to a small businessman who saw the potential in this wasted wood and took a risk with an old sawmill.

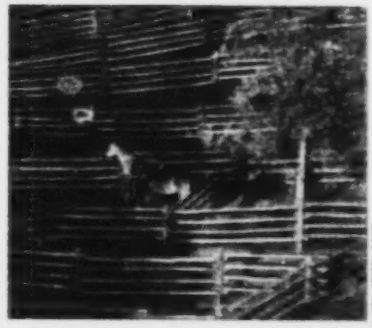
When Dean Bonlie moved to Williams Lake in 1972 there were two small cedar mills turning out a variety of cedar products. But they, like any number of past Cariboo cedar ventures, soon went broke. They couldn't turn a profit through sawmills set up to process whitewood; cedar requires different sawmilling technologies.

Bonlie, who had some past experience running logging operations, is a dentist by profession, and started up a small dental practice in Williams Lake. Once he had raised enough capital he bought the two defunct mills, one in Williams Lake, the other near Lac La Hache about 50 kilometres south. At first, Bonlie turned out some whitewood studs and railway ties for B.C. Railway's northern extension. When that project fell through he began looking for different ways to keep his mills operating.

What he saw was a lot of unused cedar.

Meanwhile, Ministry of Forests Regional Manager Eric Robinson had been encouraging the logging companies in the Quesnel Lake area to haul cedar out of their sites rather than burn it. Denny McDonald, the current Regional Manager, summarizes the situation at that time: "The established companies were logging up to their full allowable annual cut, but only in the fir-spruce stands. We wanted them to utilize the cedar, too. In order to maintain the annual allowable cut, the full forest profile, including cedar, had to be cut."

The Regional Manager's original idea was not only to have the companies sell their cedar to the cedar sawmills (if they didn't want to run them through their own whitewood mills), but also to have all the mature cedar removed from the forests so those sites could be prepared for a new crop of trees. When the local cedar mills went out of business (to be



The interior plateau of B.C. – the Cariboo – is well known for its ranching, but the mainstay of the economy here is lumber. Every day an endless procession of logging trucks rumbles into Williams Lake, loaded down with spruce, balsam, pine, fir and the once "worthless" cedar.

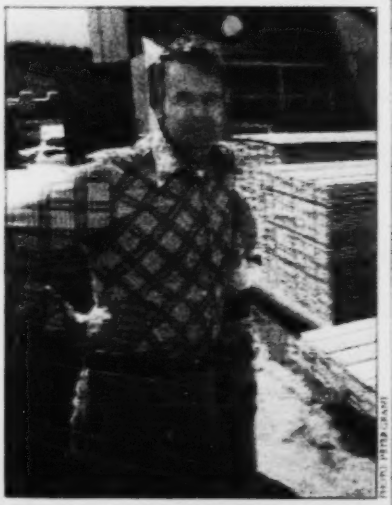
The Ingredients of Success

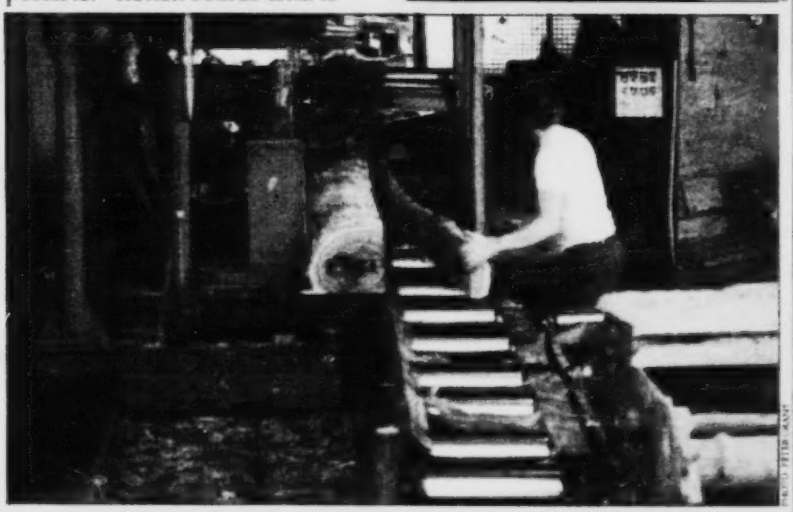
How do you make a successful business out of wood nobody wants? If you're Dean Bonlie, you make sure you use every bit of good wood you haul out of a site: "Quality control in recovery. That's the secret of the whole thing," says Bonlie. "Cedar is a short tree with a lot of taper. So you have to be prepared to recover a lot of short boards in the mill. And it's decadent wood. That means doing a lot of trimming."

Training of personnel is another of Bonlie's keys to success: "Every man in the mill is an unofficial graderman; everyone has to judge. We start a fellow off on the green chain. It takes about a year to understand what makes a good board — what to throw away, how much to trim."

In his harvesting operations, which he now contracts to local loggers, Bonlie is particularly concerned with hauling out only the useable parts of the decadent cedar: "You have to make sure your logs are going to yield good boards before you load them on the truck. Only 50 to 60 per cent of this timber is any good." The mill itself has a special waste conveyor to get rid of any remaining rot as quickly as possible. "Rotten boards tend to plug up the works and slow down the operations."

Flexibility is the other key feature of Bonlie's cedar mill, and a variety of products and grades roll off the green chain. Again, maximum recovery is the goal. "We make channel siding, for example, because if you have bark on one side of the board you can take the channel out of the bark when you plane it. You save that much wood." He also profits by marketing lumber in odd lengths, which gives him more choices in milling. "The more options we have the more we save."





later bought by Bonlie), the cedar logs began to pile up. Overall, the forest industry wasn't encouraged by attempts to utilize Cariboo cedar. It seemed that there was no money to be made in cedar, and it looked as if the easiest solution was the old one of burning the cedar in the forest.

But then Dean Bonlie began putting to work a few ideas about sawmills he had picked up in the past *(see sidebar)*, and modified his Lac La Hache mill to turn out cedar boards. His company, Starline Cedar, started producing cedar siding early in 1976.

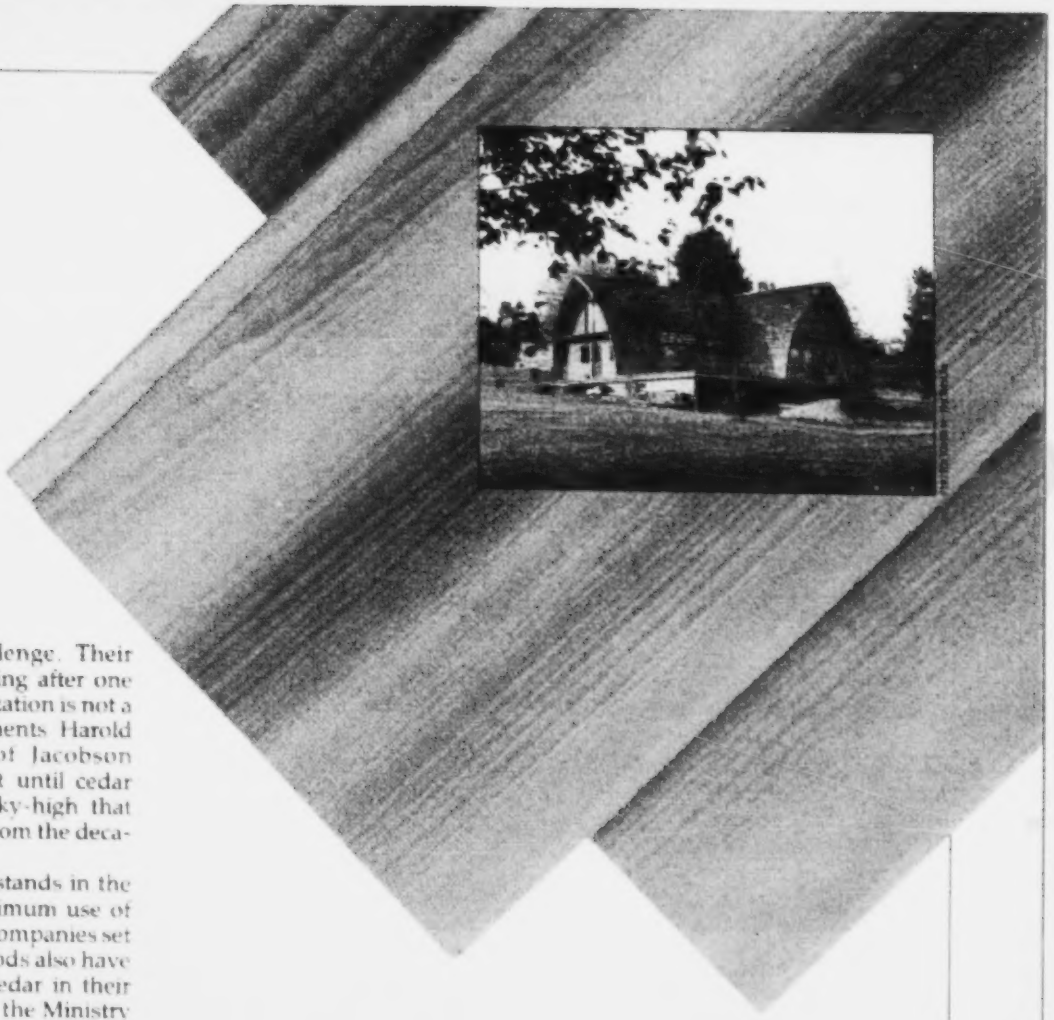
"We're just a little sawmill compared to the big boys," he says modestly. He has always supervised the entire Starline operation himself, from harvesting to milling. "When I started, market conditions were poor," Bonlie says. "I had to run the business myself to be competitive." Bonlie stuck with it and soon he was showing a handsome profit.

During the first years of his operation Bonlie often had to struggle to secure a supply of logs for his mill. "I didn't have a secure timber supply quota then," he says, "so I had to get all my wood from small timber sales." Companies that had told him they weren't interested in stands of cedar in the Gavin Lake area suddenly started out-bidding him on those sales, he claims. Bonlie says he lost out on quite a few stands because he couldn't keep up with the bidding.

Regional Manager Robinson eventually stepped in to allocate Bonlie a timber supply sufficient to keep him in business, but stronger action had to be taken to ensure that Cariboo cedar, whose commercial value Bonlie had now demonstrated, was properly used. Robinson's next step was to draw up a management plan for all the cedar in the Cariboo.

The cedar plan, among other things, showed what influence a Regional Manager can exert on the forest industry. It called for a greatly increased cedar cut (227,000 cubic metres annually), as there was an urgent need to replace stands of decadent cedar with new growth. Bonlie's two mills could only handle something more than half that amount. The cedar proposal, therefore, included an open invitation for someone to build another cedar mill.

Jacobson Brothers Forest Products, one of Williams Lake's larger firms,



responded to the challenge. Their cedar mill is still gleaming after one year of use. "Cedar utilization is not a great new idea," comments Harold Jacobson, president of Jacobson Brothers. "But it wasn't until cedar products prices went sky-high that we could make a profit from the decadent cedar."

Only one hurdle still stands in the way of making the maximum use of Cariboo cedar. Logging companies set up to deal with whitewoods also have significant volumes of cedar in their cutting areas. As long as the Ministry charged only a token amount for this cedar, the cost to the companies for ignoring cedar was relatively small. This year, however, Regional Manager Denny McDonald raised the cost of cutting cedar on Crown land to the same level as that of whitewoods. (Cedar is now appraised at the full stumpage rate and is included in the licencee's quota.) Moreover, the Ministry charges companies double that rate if they don't haul the cedar to a mill — a penalty for wasting wood.

A whitewood operator has this choice: he can run his cedar through his whitewood mill (an inefficient process because of different sawmilling requirements for cedar), or he can trade it to the cedar operators for the whitewood they accumulate while harvesting cedar on their own cutting areas. "The logical thing to do is trade," Denny McDonald points out. "We have people who need vast amounts of whitewood peelers for their veneer and plywood mills. Bonlie and Jacobson need cedar. A trading arrangement is developing slowly."

The two cedar operators in Williams Lake have created over 300 jobs in the area and the industry has a probable life of many decades. But Harold Jacobson voices this caution: "Cedar has a future in the Cariboo, as long as we're prepared for changes in the market."

With three cedar mills in the area, the Cariboo seems to have solved the dilemma of what to do with its decadent cedar. Still, it's hard to imagine what might have happened to Cariboo cedar if Dean Bonlie had stuck to dentistry. He took a chance on "rotten wood" at a time when cedar markets were slack, and in so doing helped pave the way for the development of a full-scale Ministry of Forests cedar management plan. The ugly duckling of the Cariboo forests has now grown up.

Making a profit from the decadent, over-mature cedar of the Cariboo is a bit like pulling teeth. So perhaps it's only fitting that an enterprising dentist should have been the one to take a chance on this "rotten" wood at a time when cedar markets were slack. Dean Bonlie demonstrated that cedar milling in the Cariboo could be a success, and in so doing he helped pave the way for the development of a full-scale Ministry of Forests Cariboo cedar management plan.

People

Gerry Andrews

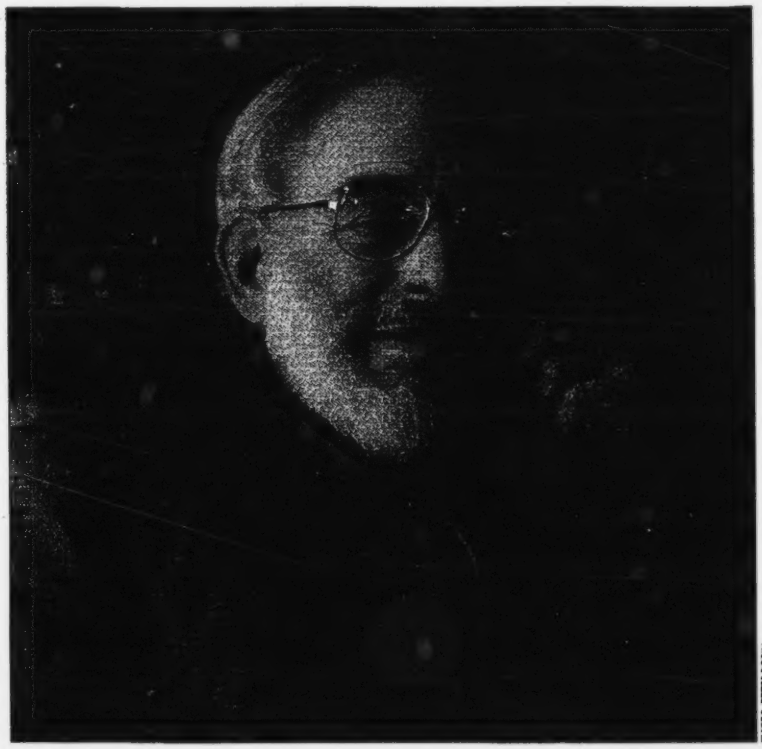


PHOTO: PETER ROBIN

by **Charles Lillard**

Back in the 1920's the only way to take inventory of B.C.'s still uncharted forests was to get out and walk the country. No one enjoyed the work more than Gerry Andrews, but before he was through he had introduced the art of photogrammetry to B.C. and changed forever the way the Forest Service surveyed the province's forests.

He's been a cowboy, school teacher, lieutenant-colonel in the Canadian Armed Forces, and B.C.'s Surveyor-General. He tried to retire once, only to become a university lecturer in South America. He then went on to survey the Mekong Delta in Southeast Asia. Now, at 76, he claims he's really retired, but he hasn't slowed down one bit.

G. Smedley Andrews, better known as Gerry, has probably seen as much of British Columbia as any man. As he talks about the north, names and places are given new life — Gerry's knowledge is first-hand. He's been everywhere and he's known everyone. And no wonder; for more than 30 years Gerry's goal was to map this province. Everything he did furthered this aim. When he retired in 1968, after almost 18 years as B.C.'s Surveyor-General, just a handful of inaccessible spots in the northern Coast Range west of Atlin remained blank on our maps.

In Gerry's Victoria study, the light is dim. There are piles of books everywhere: Lacombe's two-volume Cree dictionary, the works of Father Morice (the famous B.C. historian, linguist and map-maker, whom Gerry knew personally), the journals of Fraser and Thompson, as well as the technical reference books that are so much a part of a surveyor's life. Almost every inch of the wall space is hung with memorabilia: ammunition belts, maps, pictures, framed degrees and honours. What's here is history, Gerry's and British Columbia's.

As a child Gerry was fascinated by the early western explorers. This interest led him to enroll in pre-engineering at UBC in 1920. It was his first year in Vancouver, after graduating from high school in Calgary, and he quickly fell in love with British Columbia. Finding himself short of money the next year, Gerry decided to get a teaching certificate. "I wanted to get around." And he did. In 1922 he taught at Big Bar, northwest of Clinton; in 1923 and 1924 he taught at Kelly Lake in the Peace River country. At Kelly Lake he shared lodgings with a local fur trader and guesses his monthly expenses may have totaled $10.

In 1926 Gerry caught a train for Toronto. Four years later he returned to B.C., armed with a degree in forestry. He was immediately hired as party chief for the Flathead Forest Survey. The Forest Surveys Division of the Forest Service was responsible for the province's forest inventory, and Gerry's job was to cruise the timber and map all the tree species

throughout the Flathead river drainage area in southeastern B.C. "In those days there were few topographical maps, so you had to make your own maps. We carried elevations, drew in contours, mapped all the drainage and the lakes; we did a complete job. It was fascinating work and I loved it."

The next year Gerry was assigned to survey the Tranquille and Niskonlith forests "on the old Canadian Pacific Railway belt, north of the Thompson River, between Deadman River and Adams Lake, north of Kamloops." As he was leaving Victoria, a colleague mentioned that part of the Niskonlith had been photographed from the air by the RCAF between 1928 and 1930. Gerry "discreetly borrowed" these photos for the summer. This discretion was necessary. Gerry's boss believed, as did almost everyone at that time, that the only way to survey land was to walk it, not fly over it.

Because he had to survey the Tranquille first, it was mid-summer before Gerry got to use the Niskonlith photos. On "one wet weekend" at the Louis Creek Ranger Station, the photos were spread out across the cabin floor and the men began to study them. "Just as we were in the middle of this chaos the boss arrived. He had the habit of not letting you know he was coming. He just appeared." The boss walked in, looked around, and said, "What the hell is going on here?" So Gerry had to explain that he wanted to study the usefulness of using aerial photography in surveying. "The only way to map the country is to get out and see it," said the boss. But Gerry stood his ground. "I was convinced we had something." Finally, the boss allowed them to use the pictures, but only if Gerry "would work as though you didn't have them." The boss went on to say that the men would have to plot the air photos in their spare time. (The boss was Fred Mulholland, who, as forester in charge of inventory, would publish B.C.'s first forest inventory in 1937.)

That fall, Gerry compiled his map of the Niskonlith in the orthodox fashion, relying on the information gathered from surveying strips of land a mile apart and "sketching in the area between each mile strip." Then he worked out the aerial photography map and laid the transparency of the air map over the orthodox map. "The air photos showed more detail between the mile strips. And the beauty of it was that wherever the mile strips on the two maps coincided, there was full agreement."

Gerry took the maps to Mulholland "and he was convinced. That won the battle." And that was how the Forest Service became involved in aerial photography.

The following year, 1932, Gerry was assigned the task of surveying the Shuswap forest. Using available RCAF aerial photographs of the area, he was able to piece together a preliminary map of the territory he had to cover. Then, with the aid of one technical assistant, he surveyed the forest. By January of the following year the map was complete. "The result was some 300 square miles examined and mapped to higher accuracy and in greater detail than ever before in this type of survey, and by a technical crew of only two people."

Shortly after Gerry completed his map the Depression hit; Gerry and the other junior forest officers were laid off. But he wasn't about to wait around for better times. After distributing a few bottles of scotch in the right directions, and paying a nominal fee to a captain of a freighter, Gerry worked his passage to England. For the next year he studied at the Imperial Forestry Institute at Oxford, then moved on to Dresden, where he studied aerial photography (photogrammetry) and the interpretation of air photos. At Dresden his professor nick-named him "the good natured grizzly bear from British Columbia."

In 1934 Gerry was back in British Columbia. The Forest Service rehired him and he talked himself into a job as "air photo specialist" on a survey of the Nimpkish River. The success of jobs such as these, as well as his knowledge of photogrammetry, led to his appointment as chief of the Forest Service's Air Survey Section. This job lasted until 1940, when Gerry went overseas as a second lieutenant in the Royal Engineers.

When he returned to B.C. in 1946 he had won the Order of the British Empire for his accomplishments while in uniform, but now he was out of work. Before long, however, he joined the survey branch of the Lands Department and quickly became chief engineer of its new air surveys division. In 1951 he was appointed Surveyor-General and Director of the Surveys and Mapping Branch within the Department of Lands, Forests and Water Resources.

Asked if he felt badly about leaving the Forest Service after having worked for and with them for so long, Gerry shakes his head. "I'm convinced that by transferring to the Survey Branch in 1946, I was able to contribute far more to forestry and other fields than if I had remained to follow an orthodox career in the Forest Service."

As Gerry reminisces in the quiet of his study, he has the air of a man who remembers his early surveying days more vividly and with more enjoyment than he does his official career. The air is hazy and fragrant from his home-grown tobacco. The talk turns to the time he tramped the interior, using only Father Morice's famous map as a guide.

Gerry's love of the land is still very much intact. Every summer for the past 10 years or so, he has made the drive up to Atlin in northwestern B.C. He's already wondering if he can find someone to go north with him next year. The temptation to accompany him is great, to head north with a man who began surveying this province before there were roads north of Hazelton, Fort St. James, or Fort St. John. Turning back the clock is the chance of a life-time.

FOREST HABITAT

STAINS OF TIME

By Enid K. Lemon

You may never have noticed them, but they range everywhere: from local seaside rocks to stone peaks 18,000 feet up in the Korakuran Range of the Himalayas. There are a few colonies which are estimated to be over 2,000 years old, thereby competing with redwood and bristlecone pine trees for the record of the oldest known living plant. John Ruskin wrote that they are "creatures full of pity, covering with strange and tender honour the scarred disgrace of time."

These pioneers of the plant kingdom are lichens, tiny plants which grow on the surface of rocks or tree trunks. They grow so slowly that explorers once noted, on a return trip to an area 30 years later, that lichens on a particular rock had still not spread to adjacent rock surfaces. This slow growth probably contributed to the idea held by early botanists that lichens occurred when "spontaneously, inorganic stone became living plants." It took German botanist H.A. de Bary to discover, in 1886, that not only were lichens a form of plant life, but that they had a double identity.

A lichen is partly a single-cell alga and partly a fungus. The two partners co-exist in a symbiotic, or working, relationship. No fungus can live without a supply of organic food, which it obtains from either dead remains or by living as a host on a live organism. In a lichen, the fungus lives on the single-cell alga which manufactures its own carbohydrates. In turn, the fungus produces the water and minerals required by the alga. Altogether there are about 400 families of lichens and over 15,000 known species.

Lichens are the first forms of plant life to begin the long process of restoring vegetation to a barren land. As such, they have been described as the "humble handmaids of nature." These plants withstand extremes of physical conditions which would be fatal to other forms of life. They endure extreme droughts, baking tropical heat and freezing temperatures. Tenaciously, they cling to the bare rock. There, because of their ability to produce acids, these lowly plants gradually break down the rocks and prepare the way for the growth of mosses. These continue the soil building process, eventually resulting in the succession of higher plants, including trees.

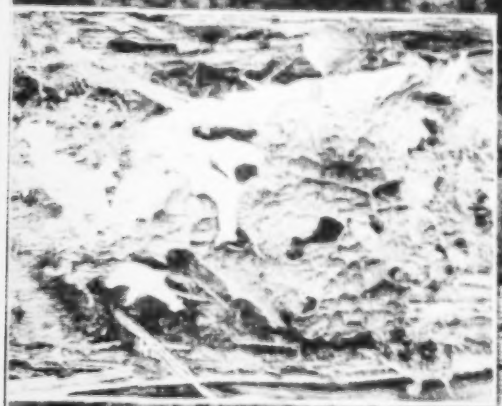
Crustose type

Lichens are classified into three forms: crustose (crusty) types, where the plant body grows attached to rocks or tree trunks; foliose (leaf like) types; and fruitcose (shrubby) types which may grow upright or hang from trees. Usually, the lichens in this latter group are slender, long and have a hair-like appearance. All types generally reproduce from pieces broken from the original plant, a most successful method of reproduction. Also, the fungus part of a lichen produces spores. These are very obvious, for example, in the scarlet-headed *Cladonia*, which is also known as British Soldiers. These red heads contain the fungus spores, which seek out alga partners to reproduce new lichen plants.

British Soldiers

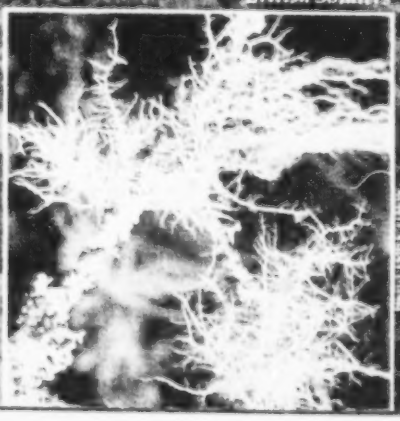
Early botanists were interested in plants for food, medicine and household use. In many cases the inconspicuous lichens were overlooked, but not always. The early Egyptians, for example, used a species of lichen, called Oak Moss, to preserve the odour of spices used in embalming mummies.

Many fanciful medical remedies were based on the "doctrine of signatures" by which plants were



Lungwort

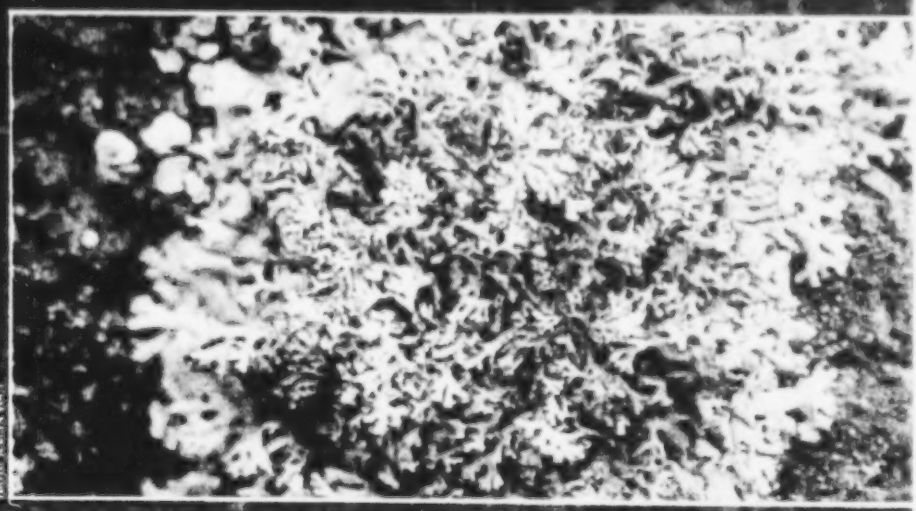
Old Man's Beard

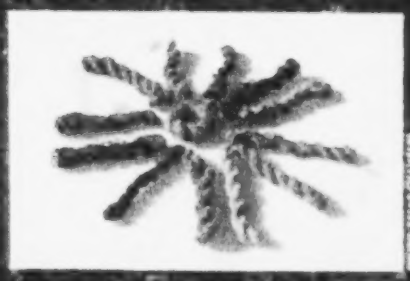


thought to more or less resemble different parts of the human body. Lungwort lichen *(Lobaria pulmonaria)*, the underside of which looks like lung tissue, was first included among medical plants in 1540 for use in the treatment of lung disease. Such uses of lichens have now given way to more scientific remedies, but various acids found in lichens have been shown to have anti-bacterial properties.

The Manna lichen, a desert species of the crustose type, is believed to be the "bread from heaven" which fed Moses and the Israelites in their flight from Egypt. It is still used by some nomadic tribes which mix it with meal to make bread. This lichen flourishes in the mountains, and as it grows older, bits break off and are blown by the high winds to the valley below. Four extensive "rains of manna" have been recorded, the last one being in 1891 in Turkey.

Man has always loved colour. Around 1600 B.C. in Crete, it was discovered that from the body of a marine mollusk the famous "Tyrian Purple" could be obtained. Each shell had to be broken individually and the small sac containing the pigment removed. As it is estimated that 3.88 million dye sacs were required to make a pound of dye, it was obvious that only royalty, or the very rich, could afford to wear this purple cloth.





(Hence the expression, "born to the purple.") In order to cut the costs of producing this purple dye, often the cloth was first coloured purple by various lichens. It was then dyed a richer purple with the mollusk dye. Eventually, many lichens were found to contain the purple pigment which is known as orchil.

With the increasing interest in home dying, the forests, which abound in lichens, can provide a great number of differently coloured dyes. Various species of *Parmelia*, fermented with ammonia, will give you purple. Lungwort lichen produces a lovely auburn colour. The yellow in the Chilkat Indian blankets is obtained from Wolf lichen *(Letharia vulpina)* a common foliose lichen of the forest. Some lichens' acids are either themselves pigments, or they will yield pigments on reaction to chemical substances. Litmus, a dye which turns blue in an alkaline solution, red in acid, and is the base for litmus paper, is obtained from lichens.

Aromatic substances can be extracted from lichen. As early as the sixteenth century several lichens common in the forests *(Cladonia, Usnea* and *Evernia prunastri)*, were used as raw materials in the perfume and cosmetic industry. Cyprus

Dyeing wool with lichens requires considerable knowledge of both the properties of lichens and the art of dyeing. In many cases, equal weights of wool and lichens are boiled together, but timing is important; prolonged boiling will often turn red to brown. Orchil-producing lichens turn purple when fermented with ammonia, then respond to an afterbath of soda by turning bluer, and to an afterbath of vinegar by turning redder. The colourful results of these natural dyes speak for themselves.

Powder, a mixture of lichens, was scented with oil of roses or jasmine for use as a toilet powder which was used to cleanse, whiten and scent the hair. As the cosmetic makers became more skilled in their trade, the materials were blended into face powders and scented sachets.

During the last war, two Russian scientists developed a method for extracting glucose molasses and glucose from certain lichens. The amount of glucose obtained, compared to the dry weight of the lichen, varies with different species. Old Man's Beard, for example, which is abundant in our forests, contains 74 per cent glucose. Who knows? With less than one-fourth of the earth's surface arable, and with our population ever increasing, the humble lichen may one day become a great contributor to the world's food supply. ☐

HALF A CENTURY OF RESEARCH

The memo from Chief Forester P.Z. Caverhill to Minister of Lands F.P. Burden was clear enough. "An area should be set aside which will act as a field centre for our research work. The best area is a block of approximately 5,000 acres of land at Cowichan. In addition, it will lend itself to development as a demonstration forest."

That was back in 1929, when only a handful of far-sighted foresters, looking beyond the seemingly inexhaustible supply of virgin timber, recognized the need for sound research into the proper restocking of B.C.'s forests. Today, the Ministry of Forests Cowichan Lake Research Station supports a wide range of silvicultural research activities. From thinning plots to plantations of specially selected Douglas firs for testing and tree breeding programs, from tree improvement studies to cone crop enhancement work, the station continues to make important contributions to the art of foresty in B.C.

To commemorate the station's 50 years of research, this past August the Ministry's Research Branch brought together station retirees, industry representatives and university researchers to attend a special 50th anniversary celebration. As part of the proceedings, Minister of Forests Tom Waterland dedicated a stone cairn erected at the station especially for the occasion.

Also taking part in the dedication ceremony were Deputy Minister of Forests

Mike Apsey and Chief Forester Bill Young. The presence of today's Chief Forester was a fitting reminder of the fifty-year-old memo from an earlier Chief Forester which brought the Cowichan Lake Research Station into being.

Province of British Columbia
Ministry of Forests
HONOURABLE TOM WATERLAND, MINISTER

PRINTED IN CANADA